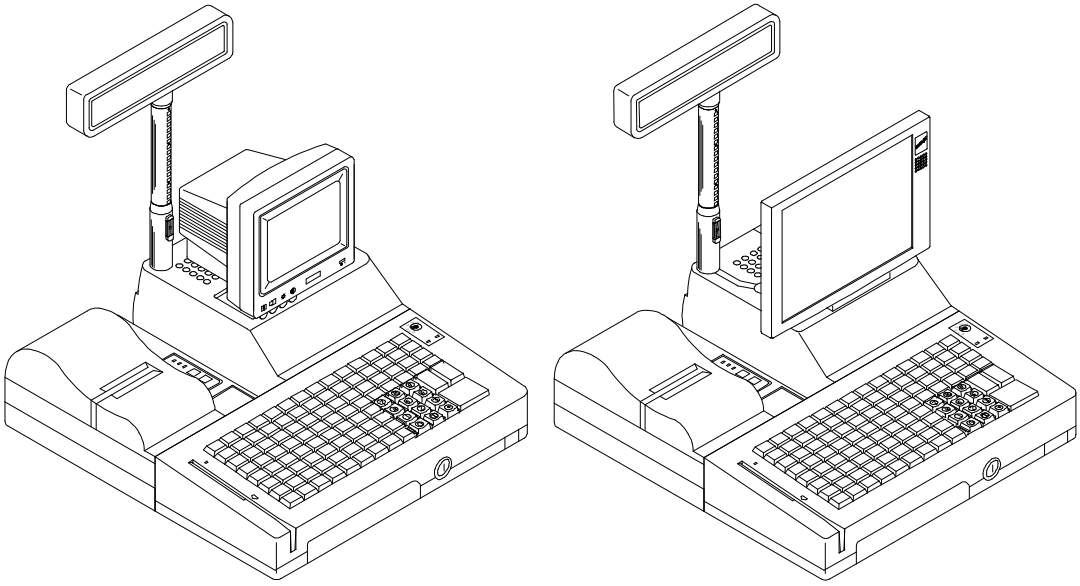
PST-7000 Series

USER'S MANUAL

Rev. A



SOME IMPORTANT NOTICES

FCC NOTICE

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with limits for a Class A digital device pursuant to subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures to correct the interference.

WARRANTY

This equipment contains no user serviceable parts and as such should be only opened by authorized technicians, failure to comply with this will void any warranty that is in force. The user should consult an authorized dealer or representative of Posiflex if the equipment fails to perform according to expectation.

The manufacturer cannot be held responsible for any damage caused or any hazard generated by improper use of this equipment.

SAFETY

This equipment should be connected to the main power source in a safe manner and should conform to the local electrical safety regulations.

This equipment also contains batteries of one or more types of chemistry. It is important that they are stored, handled and disposed of in a safe manner without hazard to the environment and again in a manner that is consistent with the local regulations for health and safety.

Additional information may be available in the Supplemental Notices.

SUPPLEMENTAL NOTICES

The Posiflex range of PST terminals are designed for use on a worldwide basis and as such may be required to carry supplemental documentation to conform to the legal and other requirements of sale within the intended region. Please make sure that any Supplemental Notices shipped with this equipment are consulted before any installation procedures are attempted

DISCLAIMER:

Considerable effort has been taken to ensure accuracy in compiling this manual but no liability can be accepted for any errors or omissions. It is the responsibility of the user to ascertain that the equipment is suitable for the intended purpose and to take adequate steps to safeguard data and to comply with the law.

The details for hardware and software quoted in this manual are liable to change without notice. They do not constitute a description of any goods or services nor a commitment on behalf of the manufacturer.

The above statements do no affect your statutory rights.

ABOUT THIS MANUAL

This manual assists the user to install and to utilize the hardware of the PST7000 series which is a member of the POSIFLEX integrated point-of-sale terminal product family. The PST7000 is a compact point-of-sale system that utilizes the most up-to-date technology in POS business machine and combines the performance and affordability of personal computers with the elegance and reliability of business machine. The PST7000 also provides the built-in networking capability for easy communication among multiple terminals in addition to the data transfer and control through back office server.

The manufacturer of the PST7000 series heartily apologizes to the user for reserving the right to change or to modify this manual without notice due to the rapid and constant progress and improvement on science and technology. The user may always obtain the most up to date information through our web site: http://www.posiflex.com.tw/ or http://www.posiflexuk.com/ or http://www.posiflexusa.com/

© Copyright Mustek Corp. 2000

All rights are strictly reserved. No part of this documentation may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written consent from Mustek Corp. the publisher of this documentation.

TRADE MARKS AND SERVICE MARKS

POSIFLEX is a registered trademark of Mustek Corp..

Other brand and product names are trademarks and registered trademarks and service marks of their respective owners.

CE This equipment conforms to the requirements of 89/336/EEC. Please see supplemental notices and additional information.

TABLE OF CONTENTS

BRIEF INTRODUCTION . . . . . 1 - 1
THE USER'S MANUAL . . . . . 1 - 1
THE PRODUCT . . . . . 1 - 2
OVERVIEW . . . . . 1 - 2
CONFIGURATION . . . . . 1 - 2
THE BASIC POSiFLEX MODELS . . . . . 1 - 2
THE STANDARD FEATURES . . . . . 1 - 3
Easy Accessible Service Windows . . . . . 1 - 3
Non-Volatile Memory . . . . . 1 - 3
Ethernet Networking . . . . . 1 - 3
Numerical Keypad . . . . . 1 - 3
Keyboard Memory . . . . . 1 - 3
6 Position Key Switch . . . . . 1 - 3
Direct Controlled Cash Drawer Port . . . . . 1 - 4
Customer Display Port . . . . . 1 - 4
Cashier Display Port . . . . . 1 - 4
Serial Ports . . . . . 1 - 4
Parallel Port . . . . . 1 - 4
USB Device Connection . . . . . 1 - 4
Modem Ring-Up, LAN And Alarm Wake Up . . . . . 1 - 5
UPS Function . . . . . 1 - 5
THE OPTIONAL ITEMS . . . . . 1 - 5
MSR . . . . . 1 - 5
Customer Display . . . . . 1 - 5
Bar Code Scanner . . . . . 1 - 5
Audio Line Output Port . . . . . 1 - 5
PCMCIA Control Board . . . . . 1 - 5
2-in-1 Cash Drawer Control Cable . . . . . 1 - 6
DRAM Memory Expansion . . . . . 1 - 6

Variety of Key Tops . . . . . 1 - 6
QWERTY Keyboard . . . . . 1 - 6
POS Printer . . . . . 1 - 6
UPS Battery . . . . . 1 - 6
Integrated CD ROM Drive . . . . . 1 - 7
SYSTEM BOX CONTENTS . . . . . 1 - 7
MAIN SYSTEM UNIT . . . . . 1 - 7
CASHIER DISPLAY CARTON . . . . . 1 - 7
CUSTOMER DISPLAY CARTON . . . . . 1 - 7
PST ACCESSORIES CARTON . . . . . 1 - 8

PARTS IDENTIFICATION . . . . . 2 - 1

INSTALLATION GUIDES . . . . . 3 - 1
IMPORTANT . . . . . 3 - 1
SERVICES WINDOWS . . . . . 3 - 1
PUTTING IN UPS BATTERY . . . . . 3 - 4
MONITOR . . . . . 3 - 4
LCD CASHIER DISPLAY . . . . . 3 - 7
CUSTOMER DISPLAY . . . . . 3 - 8
PROGRAMMABLE KEYBOARD . . . . . 3 - 9
INTERNAL KB WEDGE BARCODE SCANNER . . . . . 3 -14
INTERNAL CONNECTION . . . . . 3 -14
PS/2 MOUSE . . . . . 3 -16
PRINTER . . . . . 3 -17
AUDIO LINE OUTPUT . . . . . 3 -18
CASH DRAWER . . . . . 3 -19
AC POWER . . . . . 3 -20

USING THE PST SYSTEM . . . . . 4 - 1
BEFORE POWER ON . . . . . 4 - 1
VENTILATION . . . . . 4 - 1
OPERATING ENVIRONMENT . . . . . 4 - 1

POWER SUPPLY . . . . . 4 - 1
PRINTER DC POWER SUPPLY . . . . . 4 - 1
VGA DISPLAY PORT . . . . . 4 - 2
CUSTOMER DISPLAY . . . . . 4 - 2
SERIAL PORT – COM1 . . . . . 4 - 2
MONITOR (FOR PST7000/PST7300) . . . . . 4 - 3
MECHANICAL OPERATION . . . . . 4 - 3
TURN ON THE MONITOR . . . . . 4 - 4
DISPLAY CONTROLS . . . . . 4 - 4
CONTRAST CONTROL . . . . . 4 - 4
BRIGHTNESS CONTROL . . . . . 4 - 4
HORIZONTAL PHASE CONTROL . . . . . 4 - 4
VERTICAL SIZE CONTROL . . . . . 4 - 5
DISPLAY UTILITY DRIVER . . . . . 4 - 5
LCD (FOR PST7030/PST7350) . . . . . 4 - 6
MECHANICAL OPERATION . . . . . 4 - 6
DISPLAY UTILITY DRIVER . . . . . 4 - 7
CUSTOMER DISPLAY . . . . . 4 - 7
VERSATILE MECHANICAL MANEUVERABILITY . . . 4 - 7
PROGRAMMABLE KEYBOARD . . . . . 4 - 8
BASIC FUNCTIONS . . . . . 4 - 9
STRUCTURE . . . . . 4 - 9
6 POSITION KEY-LOCK . . . . . 4 -11
APPLICATION EXAMPLE . . . . . 4 -13
EXAMPLE 1 . . . . . 4 -13
EXAMPLE 2 . . . . . 4 -14
FURTHER IDEAS . . . . . 4 -14
SPECIAL FEATURES . . . . . 4 -15
SECURITY LOCK OFF . . . . . 4 -15
MULTI-PAGE PROGRAMMING . . . . . 4 -15
MULTI-LEVEL PROGRAMMING . . . . . 4 -15
ANSWER BACK . . . . . 4 -15
SPEED CONTROL OF OUTPUT . . . . . 4 -16

TIME CONTROL ON OUTPUT HOLD . . . . . 4 -16
SOFTWARE SWITCH OFF . . . . . 4 -16
CONVENIENCE IN PROGRAMMING . . . . . 4 -16
INSTANT CONTENT UPDATE . . . . . 4 -17
PRELOADED KEY DEFINITIONS . . . . . 4 -18
MSR . . . . . 4 -21
LED INDICATORS . . . . . 4 -22
FRONT DOOR . . . . . 4 -23
EXTERNAL PC KBYBOARD . . . . . 4 -23
3.5” FDD . . . . . 4 -23
POWER ON/OFF CONTROL . . . . . 4 -24
EXTERNAL POWER ON SWITCH . . . . . 4 -24
POWER ON/OFF PUSH SWITCH . . . . . 4 -24
SOFTWARE OFF SWITCH . . . . . 4 -24
PRESET POWER ON CONTROL . . . . . 4 -25
EMERGENCY POWER OFF . . . . . 4 -25
REAR ROOM . . . . . 4 -26
PRINTER . . . . . 4 -26
USB . . . . . 4 -26
BUILT-IN UPS WITH BATTERY . . . . . 4 -26

BRIEF INTRODUCTION

THE USER'S MANUAL

The purpose of this manual is to guide the user in the initial installation and general use of the Posiflex PST7000 series of POS terminals. It does not, however, make any attempt to explain any application software that may be supplied with it and which of course is an essential component of any system.

We intend to provide our customers with all the advantages made available in the advances of electronic technology by evolving the product design to incorporate appropriate changes and improvements, as such some detail differences may exist between this manual and the equipment supplied.

The latest information on this terminal and our other products is available from our authorized dealers or on our web site. Details of the latter are printed in our supplemental notices and additional information.

THE PRODUCT

Overview

The Posiflex range of PST7000 terminals have been designed and manufactured to meet the high end demand on POS system.

The PST range incorporates all the advances of personal computer technology within a rugged housing designed for use in a hostile retail environment. By providing an integrated design, Posiflex has retained many of the secure features of a traditional ECR and has avoided the wiring "spaghetti" associated with more traditional PC solutions.

The system architecture conforms to both the original open ISA standard (outlined in IEEEP996) and to the newer PCI bus standard. This Open Standard Architecture ensures that this terminal can use the very wide range of PC application software and development tools that are now inexpensively available and abundant.

The terminal may be used as a self-contained unit or by using the integrated network interface as one of several terminals in a network system controlled by a "back office" computer.

Configuration

The PST7000 terminal may be supplied as one of several models and may also have a number of optional items added to it. These may be from the Posiflex range or from other suppliers but because of the Open System Architecture, compatibility will in general not be an issue.

THE BASIC POSIFLEX MODELS ARE:

- PST7000 – supplied with the capability to support a VGA CRT monitor and a matrix programmable keyboard
- PST7050 – supplied with a 12" color TFT LCD display installed and a matrix programmable keyboard
- PST7300 – supplied with the capability to support a VGA CRT monitor and a PC layout programmable keyboard

- PST7350 – supplied with a 12" color TFT LCD display installed and a PC layout programmable keyboard

THE STANDARD FEATURES ARE:

Easily Accessible Service Windows

There are several windows in bottom chassis for RTC battery easy replacement, COM port power enable/disable easy setting, SO-DIMM upgrade and 1st IDE HDD replacement.

Non-Volatile Memory

The standard non-volatile memory of PST7000 series is 32 KB. This non-volatile memory is used by the software system provider to safeguard the data storage; or, if worked in cooperation with the system integrator, can be used for fiscal memory systems.

Ethernet Networking

The standard network port works with both 10 Base T and 100 Base T.

Numerical Keypad

The standard keyboard (112 keys) layout in PST7000 series contains an area for numerical keypad for easier numerical inputs.

Keyboard Memory

The standard keyboard memory of the programmable keyboard of PST7000 series is 8 KB.

6 Position Key Switch

Every PST7000 system is equipped with a 6 position key switch for several purposes. This key switch supports security lock off and multi-page programming of the programmable keyboard, answer back code and software switch off functions. 4 different type of keys are provided for different accessibility.

Direct Controlled Cash Drawer Port

There is one direct controlled cash drawer port in the rear room of each PST7000 system. This port controls one cash drawer (mostly recommended with the CR3X00/CR4X00) with the standard accessory cable CCBLA-180. This port can control two cash drawers independently using the optional cable CCBLA-238.

Customer Display Port

Every PST system provides a customer display port to drive any Posiflex customer display. However, the system case with a base tube of a customer display is different from that without a customer display.

Cashier Display Port

The cashier display ports utilized in PST7000/7300 and PST7050/7350 are different to each other. The monitor used in PST7000 and PST7300 is connected to a 3 x 5 D VGA connector while the TFT LCD used in PST7030 and PST7350 is connected to a 26 pin SCSI type specialized connector. Both connectors exist and function on any of the models.

Serial Ports

There are 4 serial ports in a PST7000 system. COM1 is shared by the customer display port and the direct driven cash drawer port. COM1 is capable of providing a +5 V DC supply. COM2, COM3 and COM4 each are capable of providing independently a +5 V DC or a +12 V DC supply. All these DC supplies are achieved through internal jumper setting and they are all defaulted to give **no** DC supply at delivery. The COM3 and COM4 ports can be disabled by internal jumper setting if any resource conflict occurs between any added adapter card and these 2 ports.

Parallel Port

Each PST system is equipped with a parallel port that supports SPP/EPP/ECP.

USB Device Connection

The PST7000 series is equipped with two connectors for connection of USB (Universal Serial Bus) devices.

Modem Ring-Up, LAN And Alarm Wake-Up

The PST7000 series can be turned on automatically upon an incoming COM port Modem call or LAN status or data packet received on LAN or a preset time/day/week/month.

UPS Function

The PST7000 series has a built-in UPS function that will protect the system from accidental AC power failure if an optional UPS battery is installed.

THE OPTIONAL ITEMS ARE:

MSR – Magnetic Stripe Card Reader supplied as:

- 2 track reader (track 1 & 2)
- 2 track reader (track 2 & 3)
- 3 track reader (track 1, 2 & 3)

Please note that the card slot is always present whether or not the MSR is fitted. A blanking module is fitted in place of the MSR if the MSR is not supplied.

Customer Display – This can be supplied in a variety of types:

- 2 line by 16 character LCD display (PD201)
- 2 line by 20 character VFD display (PD2101/PD2201)
- Graphic LCD display (PD7101)

Bar Code Scanner

- CCD scanner (CD-2800K) with 80mm width read capability
- Laser Scanner (LS6080K/LS6060K)

Audio Line Output Port

This option requires different mainboard and should be ordered before the delivery. For application of this option, a pair of booster speakers are recommended.

PCMCIA Control Board (PST060)

This board works on the PCI bus slot of the PST7000 system and accepts type II or type III PCMCIA card.

2-in-1 Cash Drawer Control Cable

This cable CCBLA-238, when added to the CR port of the PST7000 series, can be used to control two Posiflex CR-3100 or CR-3200 or CR-4000 cash drawers.

DRAM Memory Expansion

The standard memory size is 32 MB and can be expanded to 512 MB in 2 SO-DIMM modules.

Variety of Key Tops

- Quad Key
- Horizontal Double Key
- Vertical Double Key
- Single Key
- Blank Key

QWERTY Keyboard

The standard equipped programmable keyboard is a 112 keys matrixed programmable keyboard. The optional "QWERTY" layout keyboard provides a more type-writer-like area plus a numerical keypad and 53 programmable keys. This option is available for France, Germany, Italy, Netherlands,Portugal, Spain, Sweden/Finland, United Kingdom or United States.

POS Printer

- PP-1000 series Posiflex POS printers: friction paper feed, serial or parallel interface, single or dual color printing, 7 pin dot matrix impact printer.
- PP-2000 series Posiflex POS printers: friction paper feed, serial or parallel interface, 2 stations 9 pin dot matrix impact printer.
- PP-3000 series Posiflex POS printers: friction or sprocket paper feed, serial or parallel interface, 9 pin dot matrix impact printer
- PP-4000 series Posiflex POS printers: friction paper feed, serial or parallel interface, line thremal printer.

UPS Battery

2.3 AH 12V Lead Acid Battery

Integrated CD ROM Drive

This option includes case modification and should be ordered berfore delivery.

SYSTEM BOX CONTENTS

When you receive the system box you will find it contains several items:

- Main system unit
- Cashier display carton for LCD model PST7050 or PST7350
- Customer display carton if an option of customer display is ordered
- PST accessories carton
- Other optional components as ordered.

Main System Unit

The main system unit is supplied with the key tops of the programmable keyboard assembled without the transparent key caps.

Cashier Display Carton

When the order is PST7000 or PST7300, the purchased VGA mono or VGA color monitor will be shipped in a separate box from the main system unit. When the order is PST7050 or PST7350, the package for the 12.1" color TFT LCD is inserted in a side within the system box.

Customer Display Carton

This is a separate carton within the main carton and contains the customer display (sometimes called a pole display) when an option of customer display is purchased with the PST system.

PST Accessories Carton

This contains most of the small parts and loose items for PST7000 and PST7050 as follows:

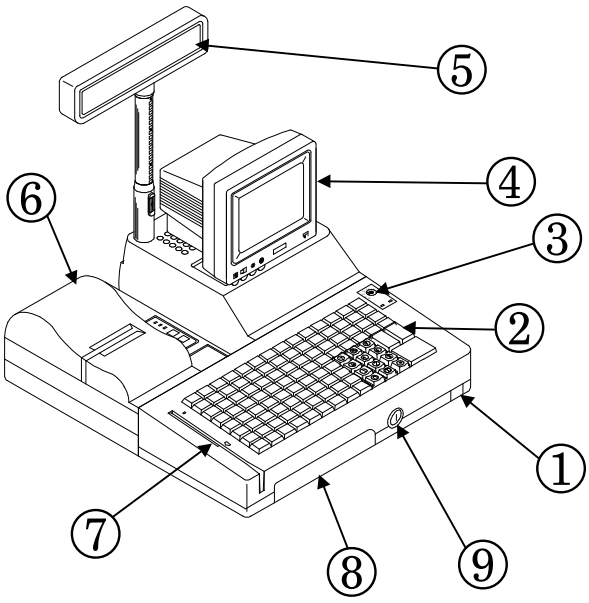
- This user's manual
- 1 set of keys (4 pieces) for keyboard key switch
- 1 set of keys (2 pieces) for front door lock
- Keyboard type dependent accessories as listed below
- 3½ inch diskette (4 pieces) with driver utilities
- Cable tie (5 pieces)
- Velcro patches (4 pieces) for printer installation.
- VFD terminator (1 piece)
- COM1 terminator (1 piece)
- Main power cord (1 piece)
- Cash Drawer cable (CCBLA-180) (1 piece)
- Printer power cable (1 piece)
- Dust cover (1 piece)

The content of keyboard type dependent accessories is listed below. Please note that these parts are different in size between the KB112 for PST7000/PST7050 and the KB136 for PST7300/PST7350. The rough measurements in millimeters of the key surfaces are also noted below:

Accessories for models	PST7000/PST7050		PST7300/PST7350	
	Qty	Note	Qty	Note
Legend sheet in 4 colors (set)	1	P/N:CLABPSTKB112-1	1	P/N:CLABPSTHKB112
Key cap removal tool (key clip)	1	P/N:QC2000	1	P/N:QCH2000
Single key transparent cap	92	22 x 18	52	18 x 18
Vertical double key transparent cap	2	22 x 37	1	18 x 37
Horizontal double key transparent cap	0	45 x 18	0	37 x 18
Quad key transparent cap	1	37 x 45	(not applicable)	
Blank key	2	22 x 18	(not applicable)	

PARTS IDENTIFICATION

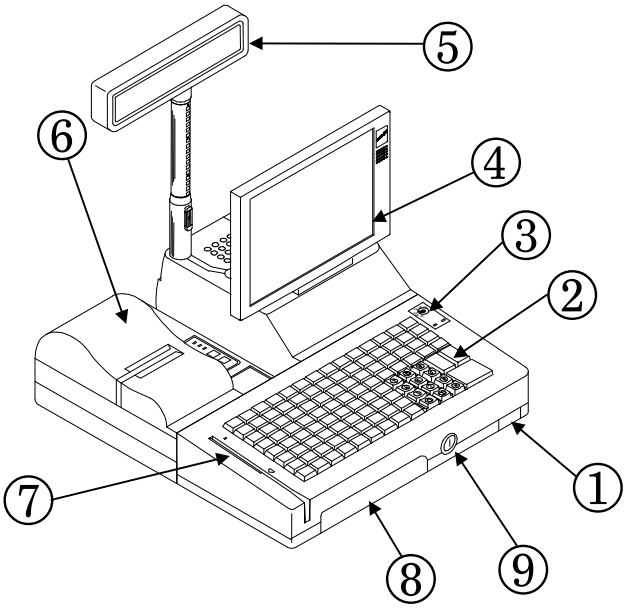
The following pictures show in detail the assembly of PST terminals and options.



MAJOR PARTS OF PST7000 CRT MODEL:

① POWER ON SWITCH KNOB
② PROGRAMMABLE KEYBOARD
③ POSITION KEY SWITCH
④ CASHIER DISPLAY (MONITOR)
⑤ CUSTOMER DISPLAY (OPTIONS INCL. PD-2101, PD-2201 or PD-7001/7101)
⑥ OPTIONAL PRINTER
⑦ OPTIONAL MSR
⑧ FRONT DOOR
⑨ FRONT DOOR LOCK

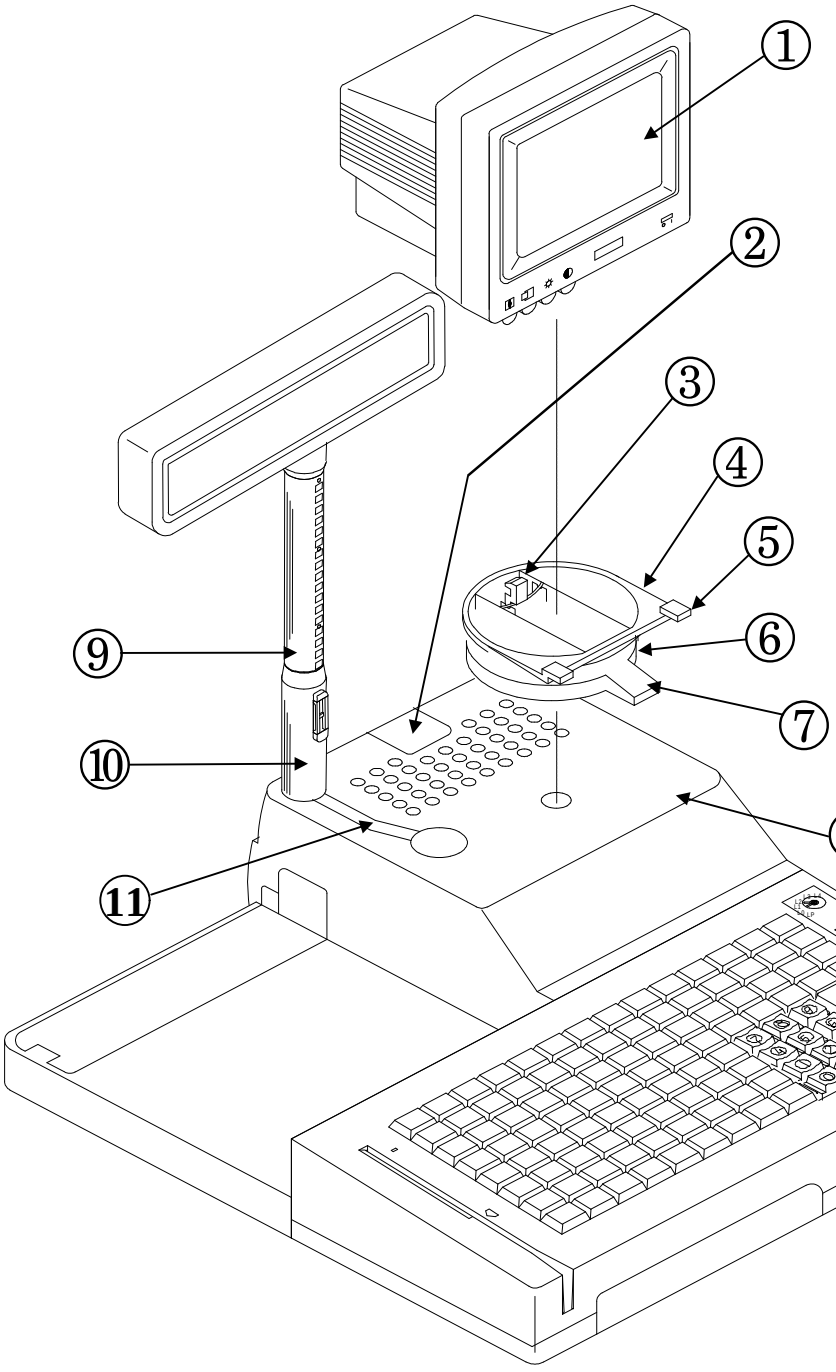
Fig. 2 - 1 Major parts seen from front of CRT model (PST7000/7300)



MAJOR PARTS OF PST7050 LCD MODEL:

① POWER ON SWITCH KNOB
② PROGRAMMABLE KEYBOARD
③ POSITION KEY SWITCH
④ CASHIER DISPLAY (LCD)
⑤ CUSTOMER DISPLAY
(OPTIONS INCL. PD-2101, PD-2201 or PD-7001/7101)
⑥ OPTIONAL PRINTER
⑦ OPTIONAL MSR
⑧ FRONT DOOR
⑨ FRONT DOOR LOCK

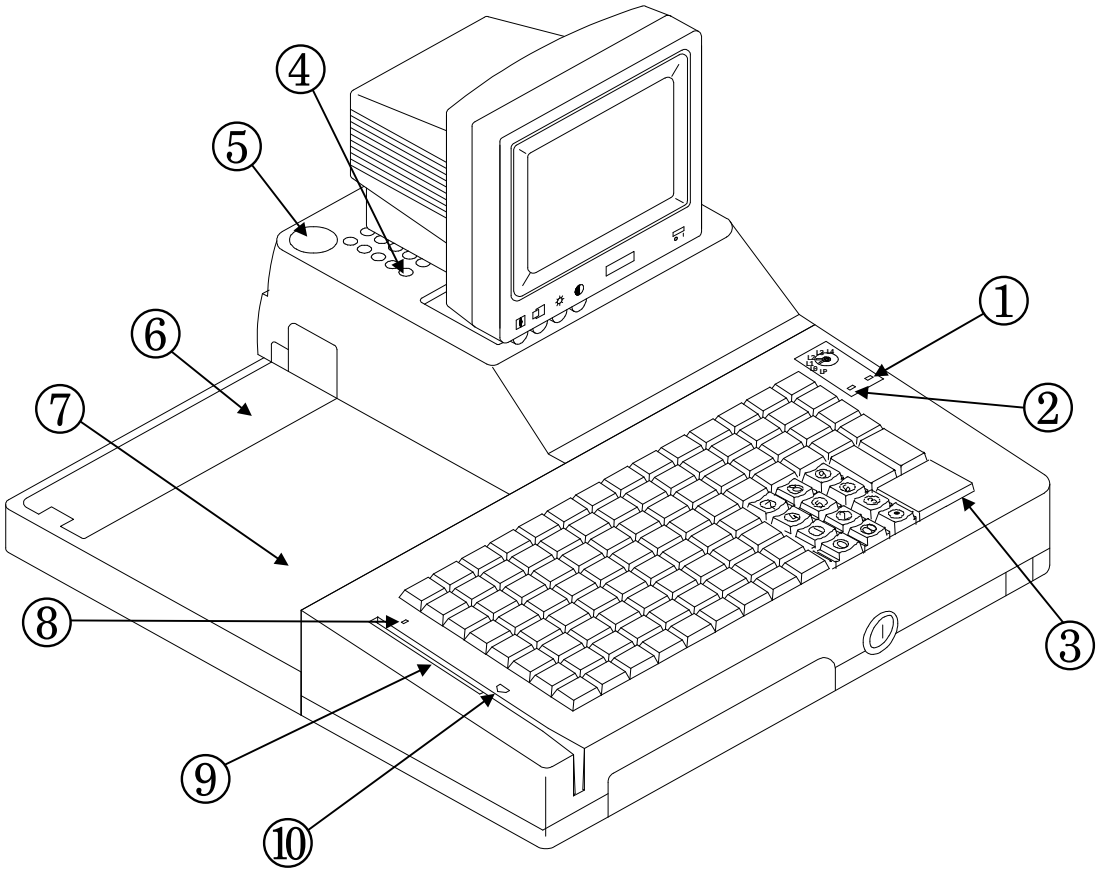
Fig. 2 - 2 Major parts seen from front of LCD model (PST7050/7350)



DETAIL PARTS:

① CRT MONITOR
② CABLE COVER
③ MONITOR HOOK
④ BOWL SHAPED TILT BASE
⑤ MOUNTING LUG
⑥ SWIVEL BASE
⑦ SWIVEL BASE HANDLE
⑧ DISPLAY PLATFORM
⑨ INNER POLE
⑩ BASE TUBE
⑪ RAIL COVER

Fig. 2 - 3a Detail parts seen from front of CRT model



DETAIL PARTS:

① POWER ON INDICATOR (GREEN)
② STAND-BY INDICATOR (ORANGE)
③ KEY TOPS WITH TRANSPARENT KEY CAPS
④ VENTILATION OPENINGS
⑤ TUBE COVER
⑥ BATTERY COMPARTMENT COVER
⑦ PRINTER PLATFORM
⑧ MSR INDICATOR (OPTION)
⑨ MSR SLOT
⑩ MSR READER HEAD INDICATOR

Fig. 2 - 3b Detail parts seen from front of CRT model

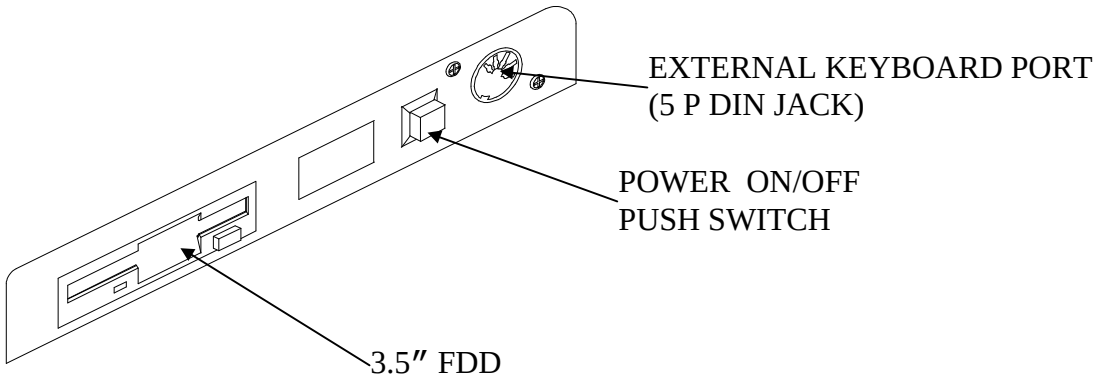


Fig. 2 - 4 Inside the front door

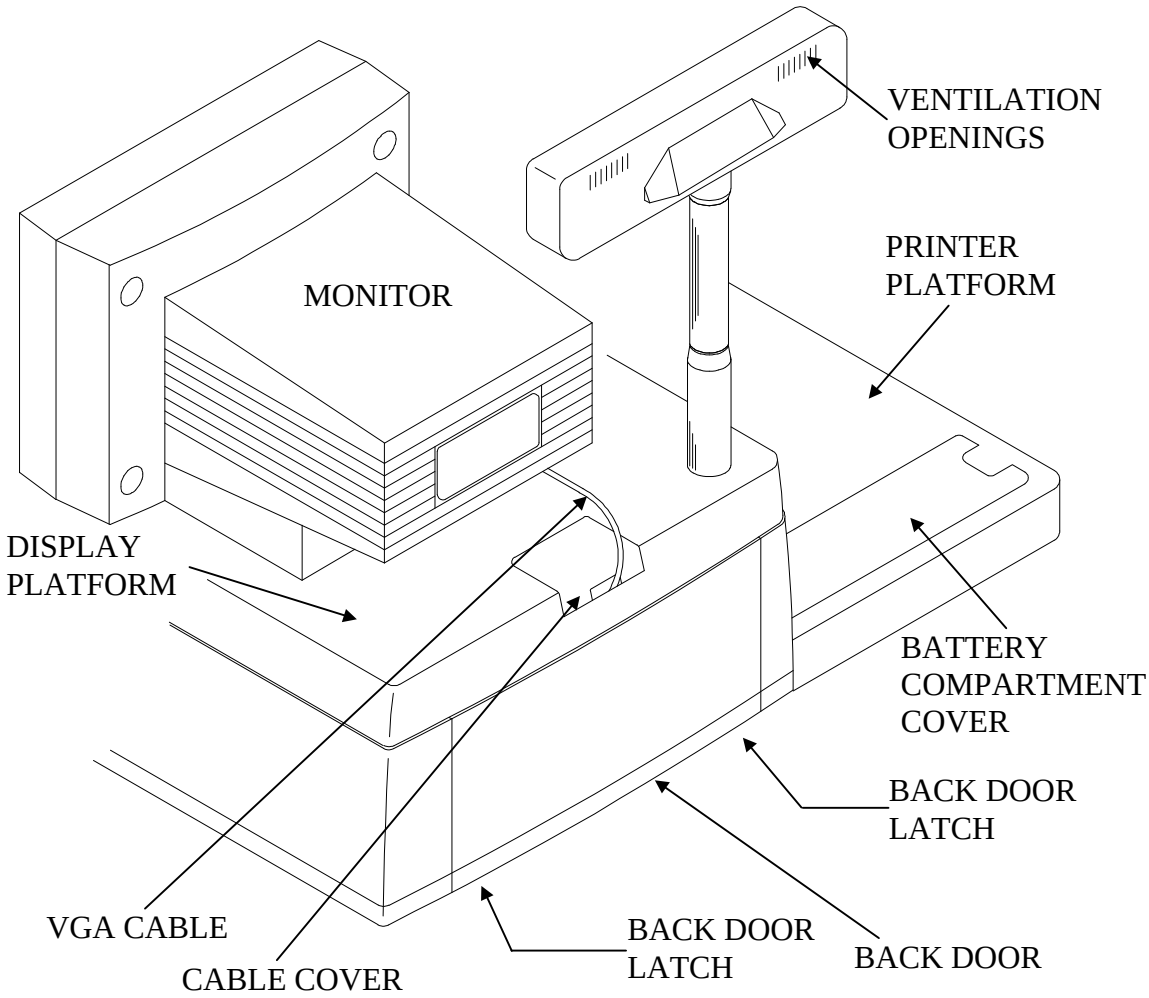


Fig. 2 - 5 Rear view of PST (CRT model in this example)

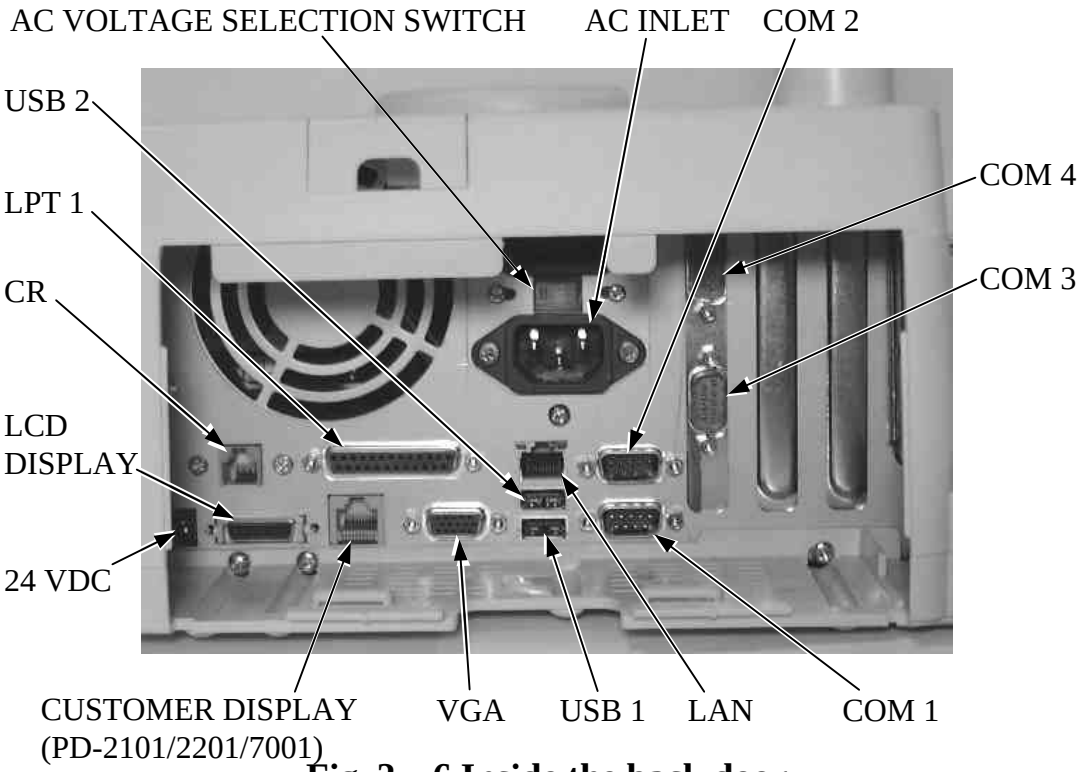


Fig. 2 – 6 Inside the back door

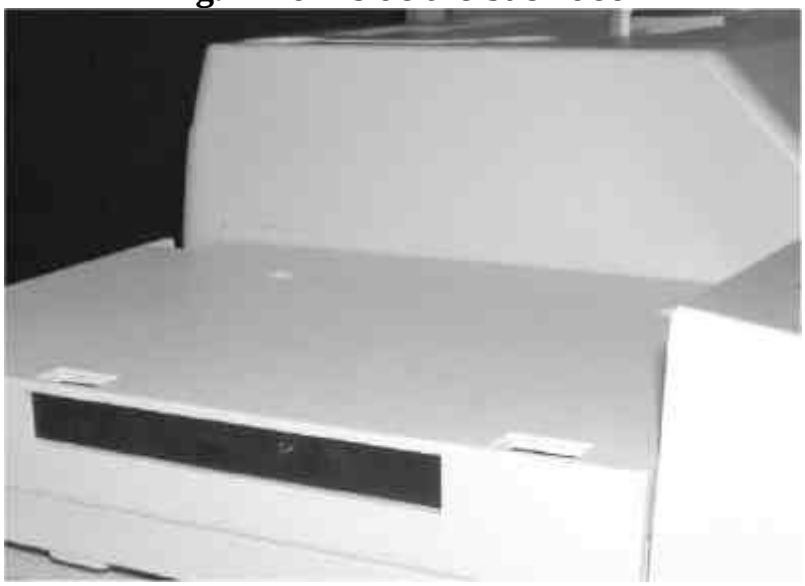


Fig. 2 – 7 The integrated CD-ROM

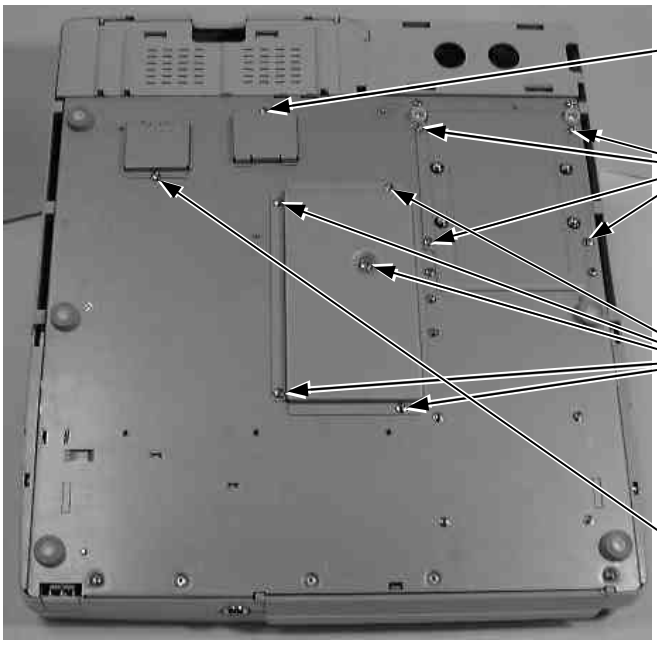
INSTALLATION GUIDES

IMPORTANT

PLEASE DO NOT CONNECT THE POWER CORD OR TURN ON THE MAIN UNIT UNTIL YOU HAVE FULLY READ THE INSTALLATION GUIDES AND FOLLOWED THE INSTRUCTIONS!!!

SERVICE WINDOWS

At the bottom of PST7000 terminals, there are four service windows that can be opened for hardware upgrade/installation without the need to open the whole structure. Please refer to the bottom view picture below for locations of these windows and their fixation screws.



1 Fixation Screw for Window for COM Port Jumper Setting

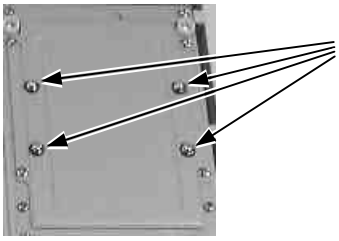
4 Fixation Screws for Window for 1st IDE HDD

5 Fixation Screws for Window for System Battery & DRAM

1 Fixation Screw for Window for UPS Battery Connector

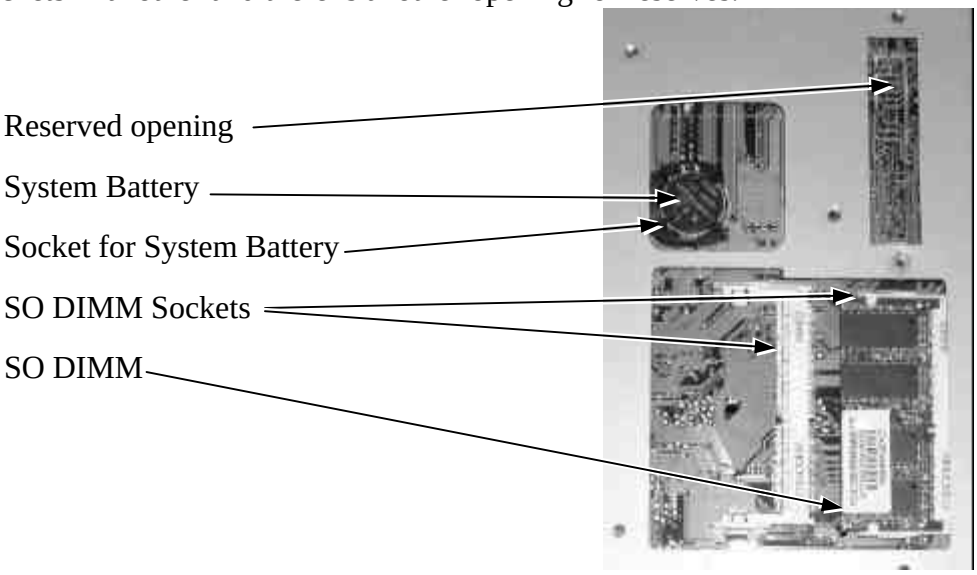
In the COM port jumper setting window, there are jumpers for defining how the power supply to COM ports are organized. Please have the jumpers changed **only by a qualified technician** who can take appropriate action under the **guidance from the Technical Manual** of this product series. Screw back the cover plate by first inserting the opposite edge from the screw hole to the bottom chassis.

When the cover plate of the 1st IDE HDD window is removed, one can see the 1st IDE HDD is screwed on the cover plate through 4 screws with rubber washers on both sides of the cover plate. Replace the HDD by unscrewing the 4 screws with rubber washers and disconnecting the data and power connection to the HDD **by a qualified technician only when neccessary**. Please always remember to put the rubber washers back on bothe sides of the cover plate to protect the HDD.



Unscrew the 4 screws with rubber washers to remove the 1st IDE HDD. Always put on the rubber washers when screwing back the HDD.

Opening the window for system battery & DRAM, there are three openings in the bottom chassis. The system battery socket in one opening, the two SO DIMM sockets in another and there is another opening for reserves.



The battery socket accepts a 3 V button cell Lithium battery (CR2032) required to support the system real time clock. A new Lithium battery can support the system RTC for about 3 years. After the battery is nearly exhausted, the user must change a new battery otherwise the system RTC and system configuration setup will be lost. The two SO DIMM sockets accept Small Outlined Dual In-line Memory Module each may be up to 256 MB.

Removing the cover plate of UPS battery connecter window, there is the connector for the UPS battery. When the optional UPS battery is purchased with the PST7000 series, the UPS battery is installed in its compartment but the connector is not connected due to some security concerns. If the user wants to add a later purchased UPS battery into a PST7000 system without UPS battery originally, he/she may refer to the next paragraph for putting in the UPS battery and make the connection as illustrated here.

After inserting the connector from the UPS battery to the socket in the UPS battery connector window, please insert the UPS battery cable wire by wire into the protective clamp on edge of the cover plate for the connector. Screw back the cover plate by first inserting the opposite edge from the screw hole to the bottom chassis.

Make sure the whole UPS battery cable is well inserted in the protective clamp at the edge of the cover plate as the picture below. The bottom chassis should look like the picture at the right after all cover plates reinstalled.

PUTTING IN UPS BATTERY

First remove the CD-ROM platform if this option is installed. Remove the battery cover first by pressing down at one end and pushing out the battery cover as shown. The user may find the UPS battery lying in the battery compartment if this option is ordered. Connect the cable through the opening on the wall toward the rear room of the cabinet and through the bottom of the rear room to the connector in the bottom chassis as described in the previous paragraph. The Velcro strips in the accessories kit may be used to firmly anchor the UPS battery into position.

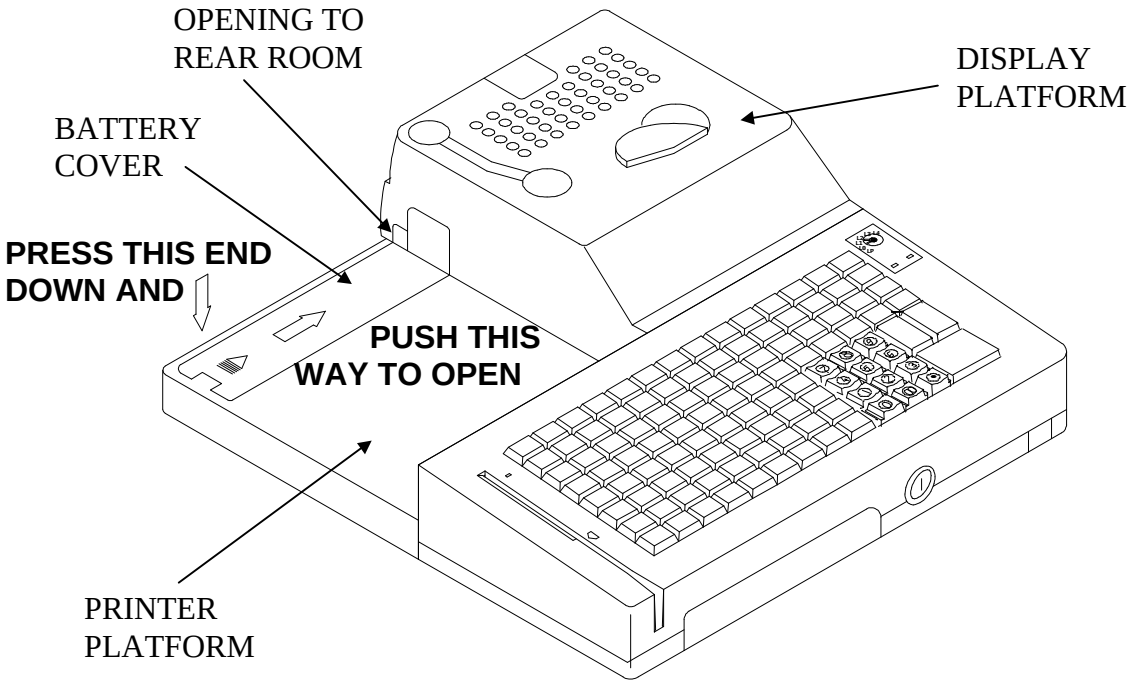


Fig. 3 - 1 Removal of battery cover

MONITOR

Upon receiving the CRT type PST7000, the monitor comes in a separate box. The installation of the monitor onto the PST product is as following. First take both the main unit and the monitor out of their boxes. Hold the monitor with the screen facing downward allowing the two mounting holes at the bottom toward the two mounting lugs on the bowl at the top of the PST main unit (ref. Fig. 3-2). Let the two mounting lugs insert into the two mounting holes, then gently push and rotate the

monitor backward 90° to have the monitor sit on the bowl mounted on top of main unit. On completion of this maneuver the rear of the monitor will "click" into position over the monitor hook and will be securely retained into position.

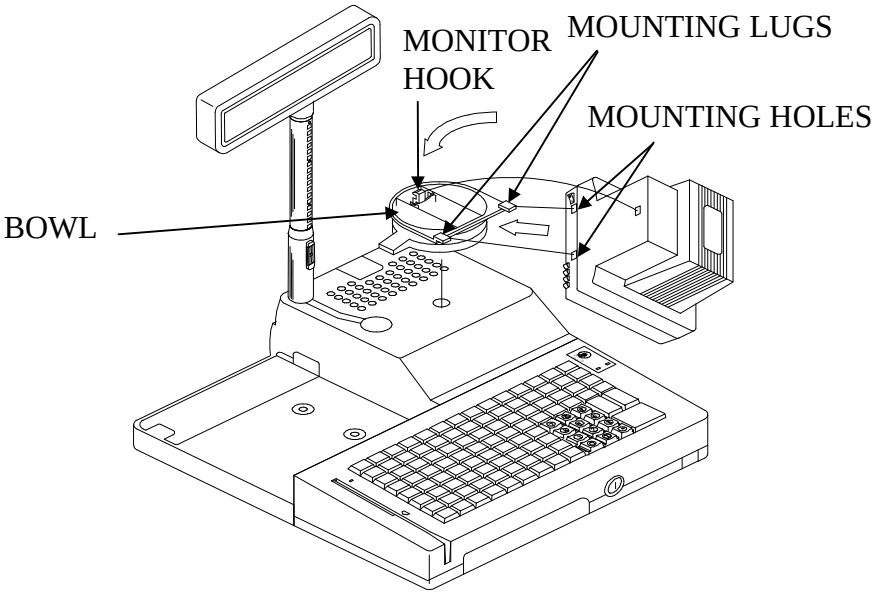


Fig. 3 - 2 Mounting monitor

The next step is to pass the monitor cable(s) through a square hole at the back edge of main unit. Open the back door by sliding two back door latches (ref. Fig. 2-5) at the bottom of back door toward the center. The back door is easily removable. Remove the cable cover by pulling the latch on the underside of the cable cover (ref. Fig. 3-3). Connect the VGA cable (and the AC cable to the AC outlet above the socket for AC inlet if an AC type CRT such as the color monitor is delivered in stead of DC type) to the VGA connector. This connector may be marked as "display". Secure the two hex screws on the display connector. Put the cable cover back onto the square hole with the hook end in position first and then press the cover down to position. You will hear another click sound and the cable cover is well mounted.

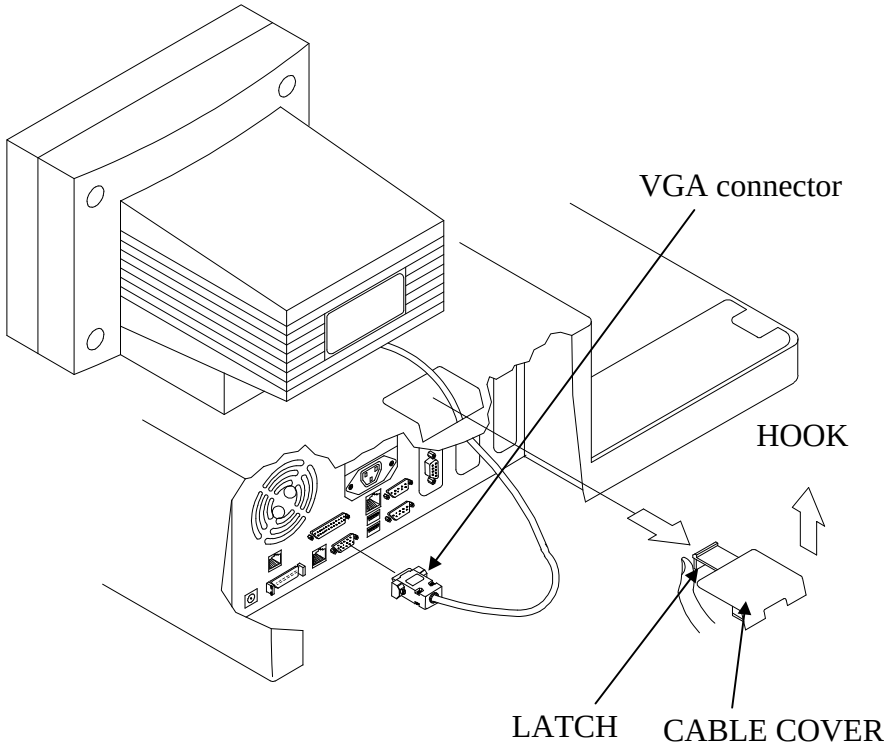


Fig. 3 - 3 Cable connection of monitor (for PST7000)

To remove the monitor, first disconnect the cable(s) then pull the latch on the underside of the cable cover to remove the cable cover (ref. Fig. 3-3). Then pull the monitor hook lever at the bottom at rear side of the bowl by finger, then raise and rotate the monitor forward till the CRT front is facing downward. You will then be able to remove the monitor easily.

The VGA connector in the LCD models PST7050/PST7350 can be connected to a stand alone VGA monitor as an extra display. However, to use the extended dual display mode (each screen showing different pictures), the VGA monitor will be referred to as the first display and the shared VGA memory must be set to 8 MB.

LCD CASHIER DISPLAY

When the PST7050 or PST7350 is ordered, the user has to take the 12.1" TFT LCD cashier display out from the cashier display carton and assemble it onto the main unit per following instructions.

Unscrew and take out the pivot that is screwed on the display platform of the main unit. Unfold the base of the operator display and insert it into the opening on the display platform of the main unit till it clicks. Screw the pivot back to secure the base of the cashier display on the display platform of the main unit as in Fig. 3-4. Remove the cable cover on the display platform (same way as the instructions for CRT model) and insert the 26 pin SCSI connector of the 12.1" TFT LCD through the hole into the rear room. Reserve some sag in the cable so that the LCD cashier display will be allowed to turn and reinstall the cable cover. Connect the 26 pin connector of 12.1" TFT LCD to the LCD display connector in the rear room (ref. Fig. 3-4).

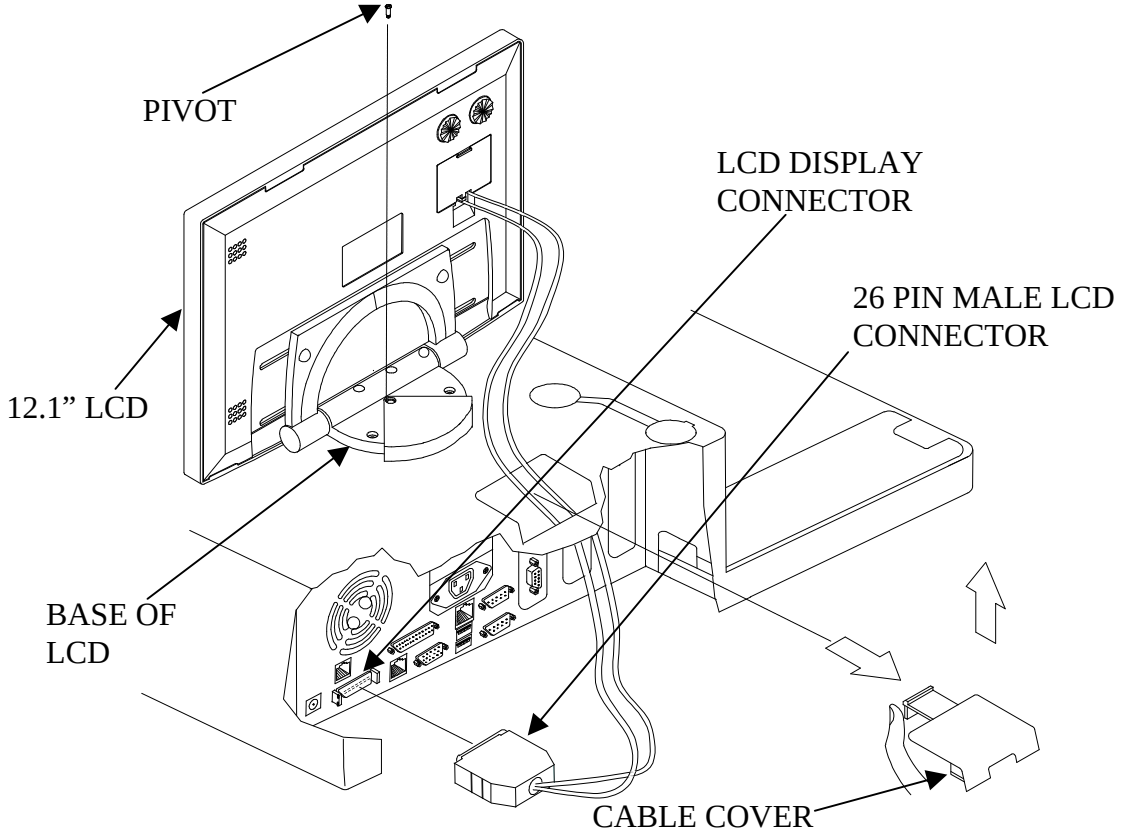


Fig. 3 – 4 Installing the cashier display

CUSTOMER DISPLAY

When the PST7000 series is ordered with the customer display option, the terminal will be delivered with the base tube for the display already fitted to corner of the display platform.

The customer display head can be easily inserted into the base tube after first inserting the signal cable. The release button on the base tube must be pulled out to allow the inner tube of the display head to travel down into the base tube (ref. Fig. 3-5). Please ensure that the latching track on the inner-pole matches up with the release button. Open the back door and find the connector marked "customer display" or "VFD". Please remove the VFD terminator from this connector and store in a safe place. Insert the cable plug of the customer display into customer display connector until a click sound is heard.

Please NOTE: The VFD connector must always be populated either with the VFD terminator or a plug from the customer display (Failure to do this will prevent COM1 from working correctly).

Close the back door then slide the two door latches outward and the installation is completed. Please refer to the instructions in the part "TO USE THE PST SYSTEM" for later adjustment on the most comfortable position and direction of the customer display.

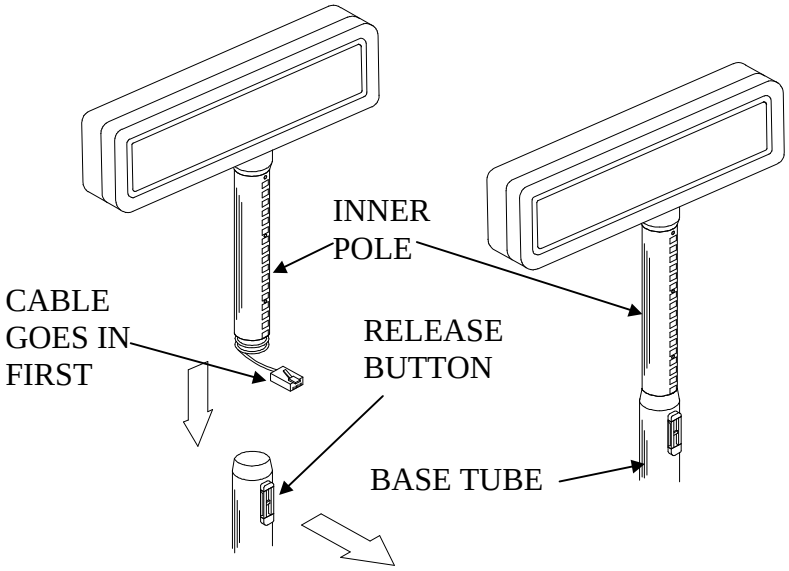


Fig. 3 - 5 Customer display installation

PROGRAMMABLE KEYBOARD

The PST terminal is equipped with an extremely versatile programmable keyboard. In which up to 255 characters as well as diverse control functions may be assigned to each key (subject to the 8KB maximum total storage limit). This feature allows the programmer complete freedom in mapping the keyboard layout without having to introduce software TSRs or .dlls into the PC host for application. (The complete programming primer for the keyboard is in the technical manual). This keyboard comes in 2 different layouts : KB112 for PST7000/PST7050 and KB136 for PST7300/PST7350. The key tops of the 2 layout have different sizes for a single key, so all the accessories for the 2 layout can not be mutually exchanged. However, they are common in structure.

The keyboard is shipped from the factory with the key tops fitted, but without the transparent key caps (these are in the accessories box). Also supplied with the keyboard are 4 die cut self adhesive A4 label sheets that may be printed by most conventional means with whatever legends are required by the application.

Because of the programmable nature of the keyboard the key layout may be different from that envisioned by the application and therefore, may be arranged to suit the convenience of the operator.

There are a number of types of key available:

- Single key with transparent key cap
- Vertical double key with transparent key cap (for KB112 only)
- Horizontal double key with transparent key cap (option for KB112 only)
- Quad key with transparent key cap (for KB112 only)
- Numeric keys with fixed legends (for KB112 only)
- Double key with transparent key cap (for KB136 only)
- Blank key for cluster separation

The user may use the key clip (to be found in the accessory box) to pull off the key caps and apply the printed legend label on the key top then recap the transparent key cap for identification (ref. Fig. 3-6).

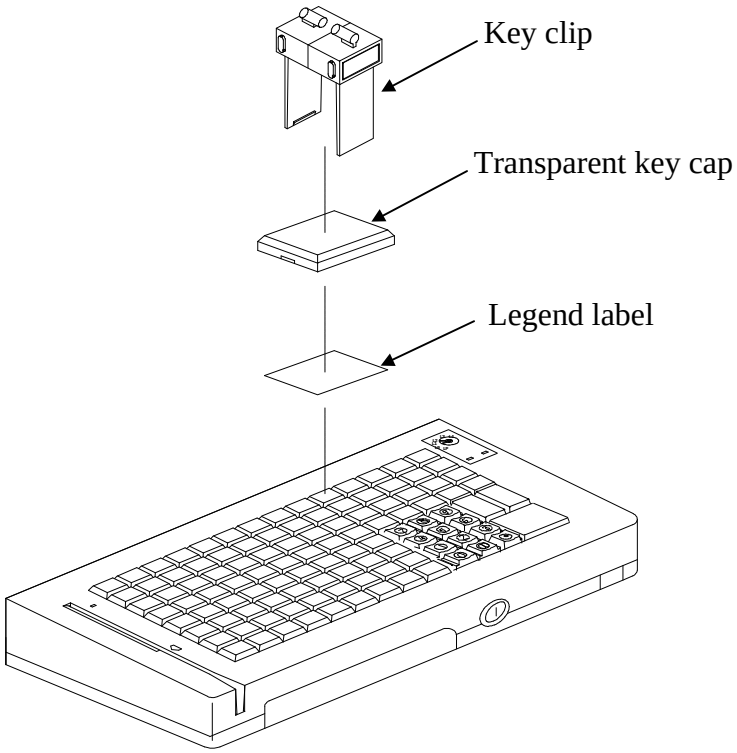


Fig. 3 - 6 Applying the label and locating the key cap

The user may also use a flat bladed screwdriver to remove the key tops (ref. Fig. 3-7a, b & c) for proper arrangement of the key tops. The key clip should be expanded to remove the key cap from the double key or the quad key (ref. Fig 3-8).

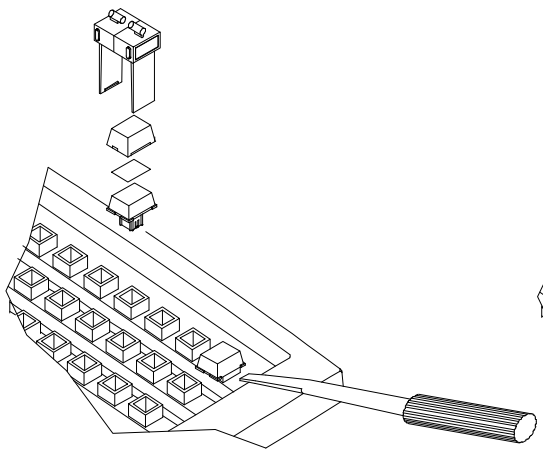


Fig. 3 - 7a
Removing key top
(Single key)

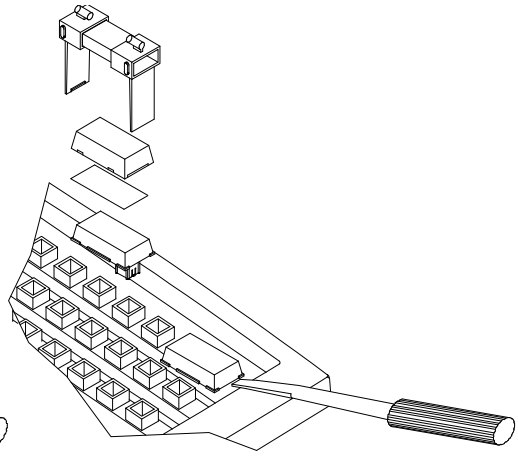


Fig. 3 - 7b
Removing key top
(Double key)

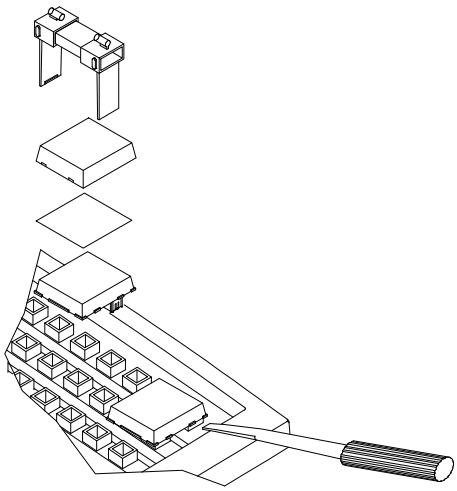


Fig. 3 - 7c
Removing the key top
(Quad key)

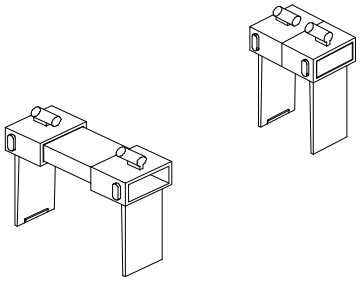


Fig. 3 - 8 The key clip

It is important to correctly orientate the key tops before they are inserted into the keyboard frame (ref. Fig. 3-9); **failure to do this could result in permanent damage.** There is, on one side of the square stem of the key top, a small latching tab, this mates with a corresponding tab on the inside wall of the key top guide hole in the way illustrated in Fig. 3-10a, Fig. 3-10b and Fig. 3-10c.

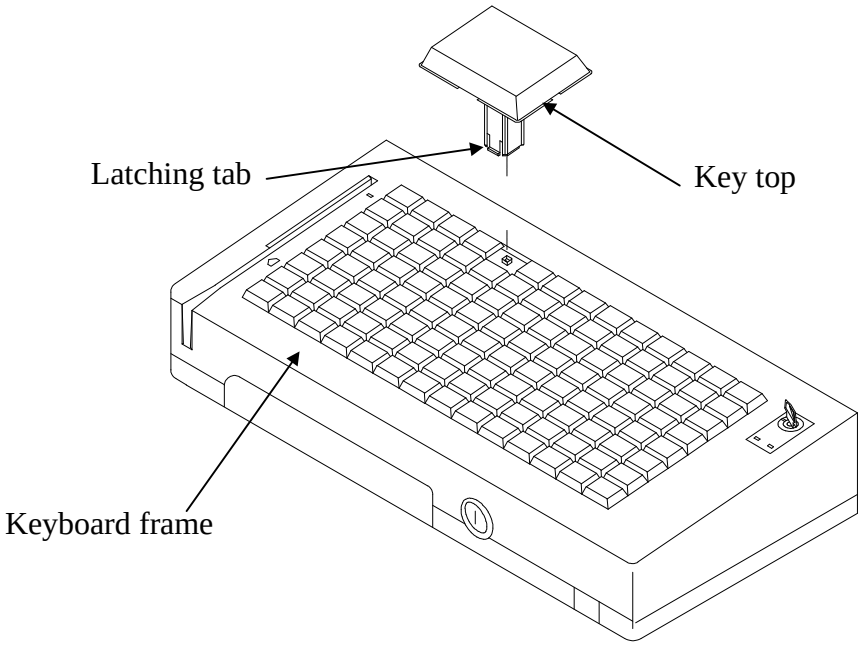


Fig. 3 - 9 Inserting the key top

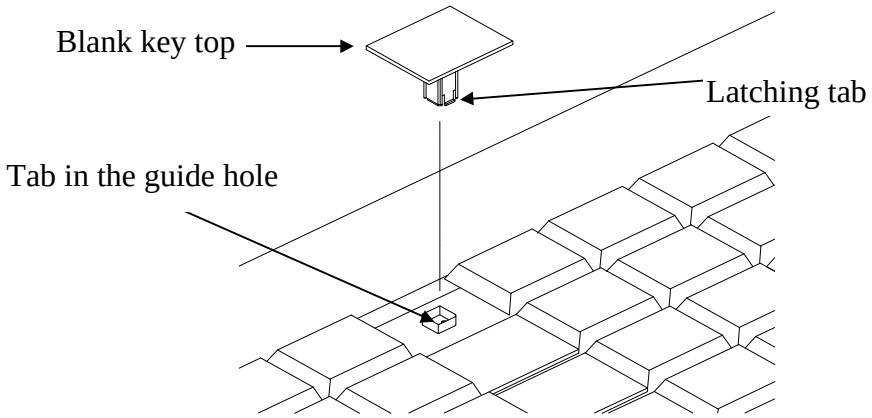


Fig. 3 - 10a Inserting a blank key top

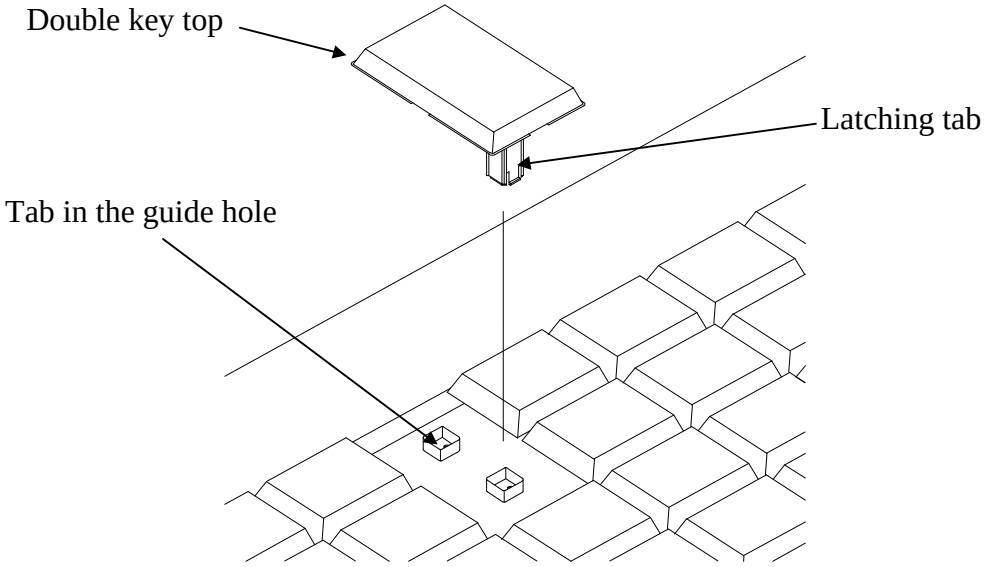


Fig. 3 - 10b Inserting a double key top

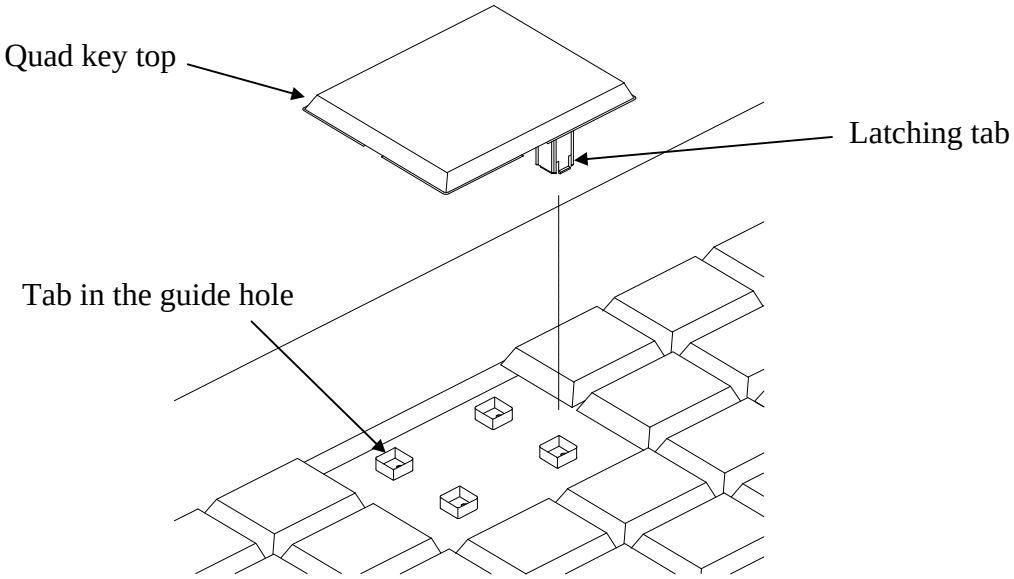


Fig. 3 - 10c Inserting a quad key top

The entire program contents of the keyboard should be saved prior to any use of the PST terminal. The key contents include the contents of the multiple paged 112 keys of KB112 (or 51 plus 2 keys of KB136) and the answer back codes of the 6 position electronic key. The programming methods may be accomplished using the following procedure with details explicitly explained in the Technical Manual.

1. Locate the program rwm.exe. This is normally stored on the utility diskette supplied with the PST. The full path to this program is **A:\kb-drv\rwm.exe** if the diskette is placed in drive A:

Please check your supplemental notices and information for changes.

2. To save the current programmed layout execute rwm as follows:

rwm filename -r

This will save the layout in a file called: **filename**

Note: you may choose any name for the file obeying the normal DOS file conventions. We recommend that you use the **.tpl** file extension.

3. To reload a previously saved layout from a file called **filename**, execute rwm as follows:

rwm filename

INTERNAL KB WEDGE BARCODE SCANNER

The PST keyboard has been designed to provide a daisy chain interface (DCI) capability such that it is possible to connect a number of suitable input devices in series with each other. In this way each device can communicate with the application software, as if it were an actual keyboard at which someone had typed the characters.

The terminal is supplied with two devices already in the daisy chain. The first is the programmable keyboard followed by the magnetic stripe reader (MSR) if fitted.

It is possible to add additional devices to this daisy chain either as an internal or external connection (ref. Fig. 3-11) subject to a maximum of 5 devices (this is dependent on the electrical characteristics of the devices and may be less than 5 devices).

Internal Connection

This is the preferred method for a permanent connection and would typically be used for bar code readers.

To access the internal connection you must remove the keyboard. To do this first unlock the front door lock and then remove the two mounting screws from the underneath of the chassis located just behind the front edge of the terminal. Once these screws have been removed it is possible to lift the front edge of the keyboard housing and then rotate the keyboard "up and back". This then exposes the keyboard controller on the underside of the keyboard (ref. Fig. 3-12). Connector A is normally inserted into socket B (on controller C) when the terminal is supplied without an additional DCI device. To add an internally connected DCI device A should be removed from B and the new device inserted between them. Match the top edge of the programmable keyboard with rear cabinet of main unit and close it to the bottom chassis. Before closing it, the cables must be fixed to the bottom chassis with a cable tie and a piece of cable cover at side of bottom chassis must be taken away. Mount back the two screws from bottom side then the installation for internally connected KB wedge device is done.

We strongly advise users to consult with their dealers to have an authorized technician for such installation.

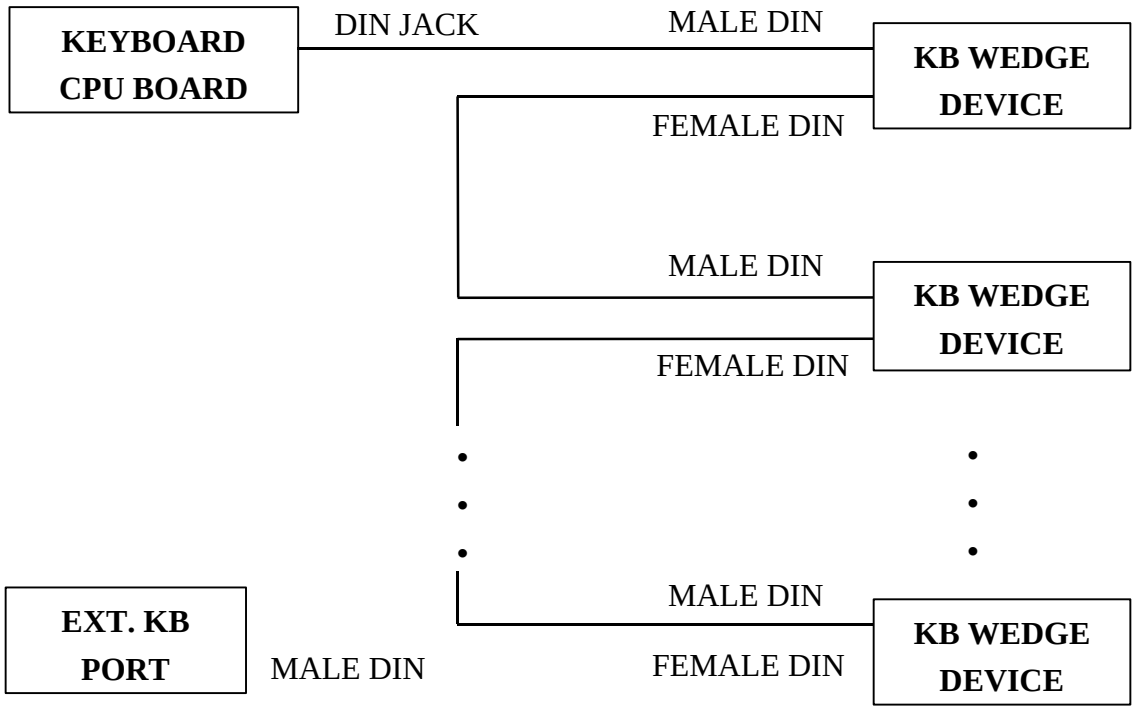


Fig. 3 - 11 Connection of multiple internal KB wedge devices

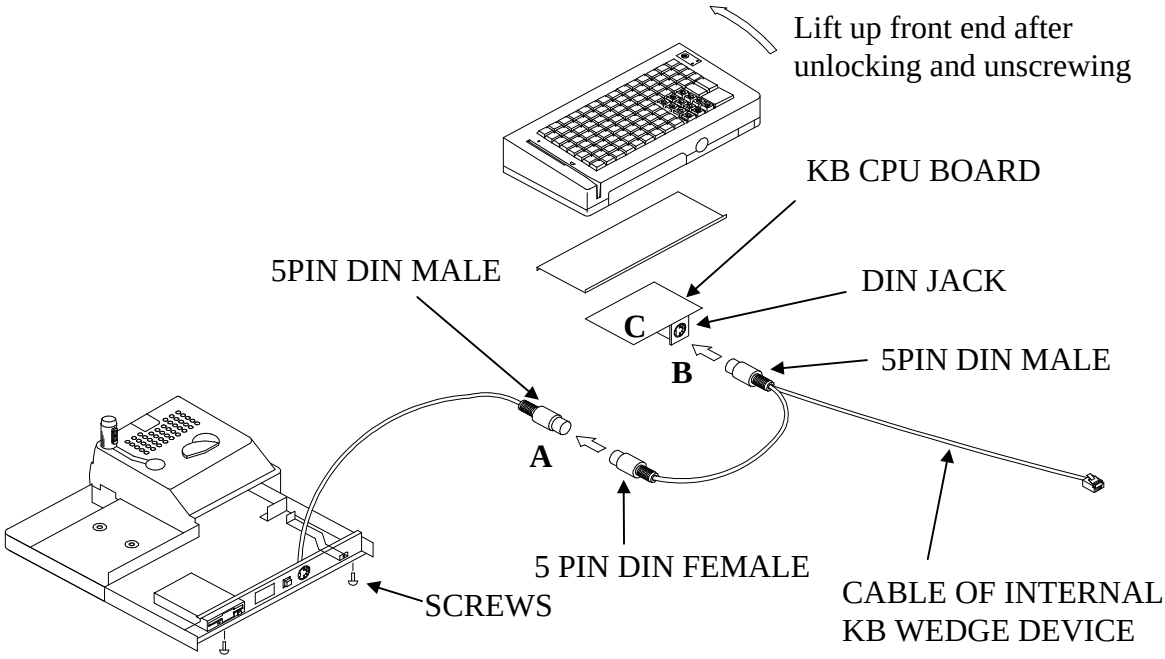


Fig. 3 - 12 Installation of internal KB wedge device

PS/2 MOUSE

Unscrewing the 2 screws near the front bottom corners with the front door unlocked, the programmable keyboard section can be raised up exposing part of the EMI protection shield over the mainboard. On the front edge of the mainboard, there is the PS2 mouse port. After connecting a PS2 mouse to this PS2 mouse port, please remove the cable stopper on either side of the chassis and route the mouse cable through the side opening before screwing back the keyboard section.

After the mechanical installation of the PS/2 mouse, the user should enable the function of this mouse in the CMOS setup. Enter the CMOS setup by pressing "DEL" key at system boot up, choose for "INTEGRATED PERIPHERALS" and make the "PS/2 MOUSE" enabled. Save the configuration and exit the CMOS setup program. The PS/2 mouse will then be ready for the control of the operation system.

PRINTER

Assemble the printer following the instructions supplied with the printer.

Remove the battery cover first by pressing down at one end (ref. Fig. 3-13) and pushing out the battery cover as shown. The user may find the UPS battery lying in the battery compartment if this option is ordered. Connect the cable through the opening on the wall toward the rear room of the cabinet to the connector marked "LPT 1" (if the printer is a parallel printer as ref. Fig. 3-14). Or connect the cable to a proper "COM" port (COM 1 through COM 4) according to the definition on the application program (if the printer is a serial printer). The 24 VDC power cable should be attached to the 24 VDC connector in the rear compartment if the printer is to use this power supply from the terminal. These cables should be passed through "opening **A**" as shown in fig 3-13. The battery compartment cover should now be replaced and the signal and power cables should be attached to the appropriate connectors on the underside of the printer. Finally the printer should be placed into position on the printer platform of the terminal. The Velcro strips in the accessories kit may be used to firmly anchor the printer into position.

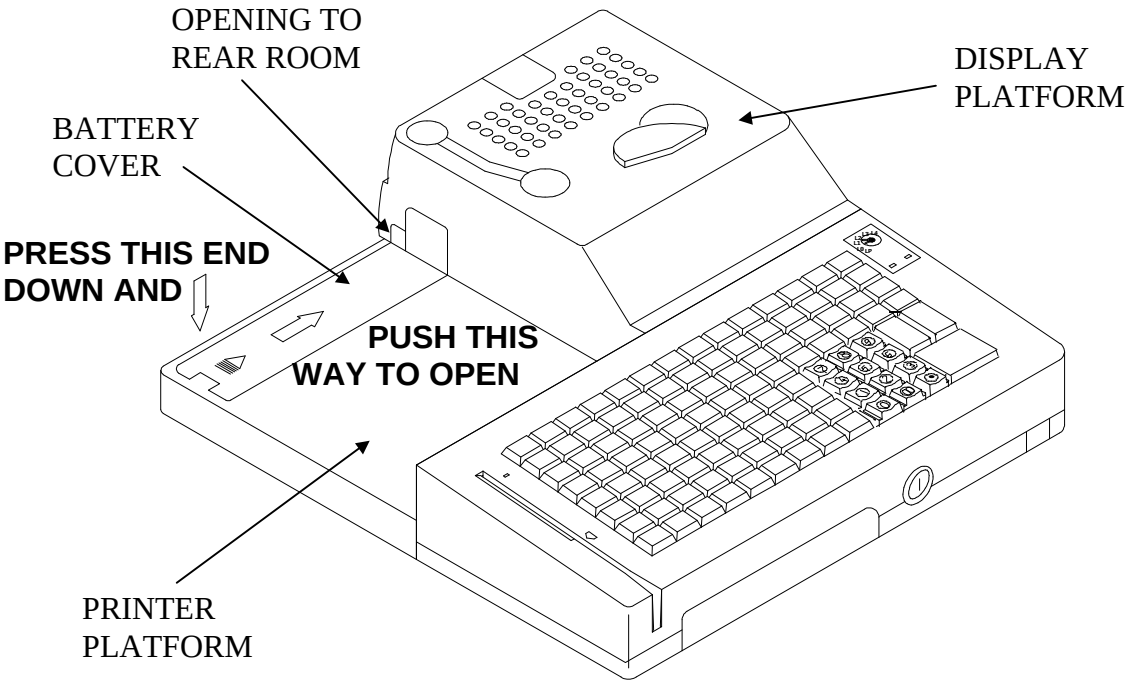


Fig. 3 - 13 Removal of battery cover

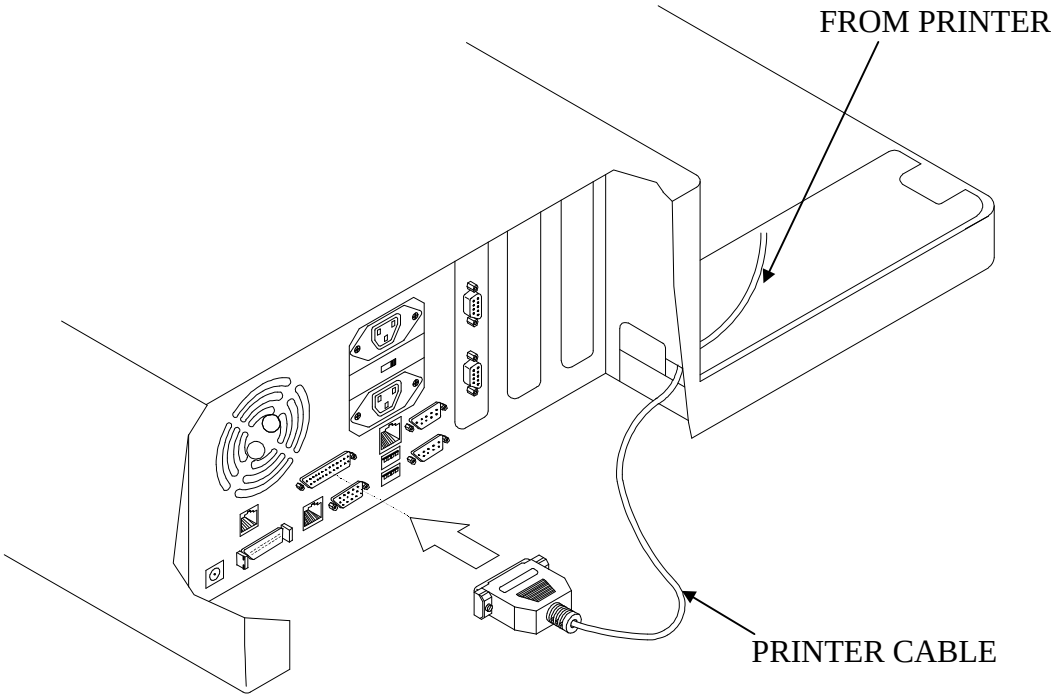


Fig. 3 - 14 Example showing the connection of a parallel printer

AUDIO LINE OUTPUT

The audio line output port in the rear room of PST7000 series accepts a stereo 3.5 Ø plug. Instead of connecting to the usual speaker, please make sure to connect it to a pair of booster speakers.

CASH DRAWER

The PST7000 is able to control most of the common cash drawers available on the market. However, it is recommended that the Posiflex CR-3100 or CR-3200 or CR-4000 or CR-4100 be used since the terminal has been designed to compliment this cash drawer both mechanically and electrically.

The PST7000 will directly control the cash drawer using the cash drawer port (CR) both to operate the opening mechanism and to monitor the drawer open status. Both functions may be accomplished under software control of the COM1 serial port.

The PST terminal must be connected to the CR-3X00/4X00 cash drawer using the cable supplied with the terminal (Part No. CCBLA-180) in the accessory box.

The cable assembly has a 6 pole plug at one end and a 8 pole plug at the other.

The 8 pole plug should be inserted into the connector marked: "signal cable from POS Printer" at the rear of the cash drawer.

The 6 pole plug should be inserted in the connector marked "CR" found in the rear compartment of the terminal.

The cash drawer may be mounted beneath a sales-counter using an optional mounting bracket or the terminal may be placed directly onto the cash drawer.

The PST7000 series offers another advanced feature in the cash drawer control by using the optional split cash drawer control cable CCBLA-238 which has a 6 pole plug at one end and two 8 pole plugs at the other. The 6 pole plug should be inserted in the connector marked "CR" found in the rear compartment of the terminal. Each 8 pole plug should be inserted into the connector marked "signal cable from POS Printer" at the rear of one of the cash drawer. The cable lengths for the two 8 pole plugs are different. Use the shorter one for the original cash drawer "CR1" and use the longer one for the extended cash drawer "CR2" that will be distinguished by the software command. In this way, the PST7000 is capable of controlling two cash drawers independently through software command.

AC POWER

The power supply operating voltage ***must*** be checked and altered if necessary. This must be done ***WITHOUT*** any connection to the AC power.

The operating voltage adjustment switch is located between the two power connectors in the rear compartment (Both connectors are standard IEC 3 pin connectors, one is a power inlet and the other is a power outlet).

The switch should indicate either 115 volts or 230 volts. When set at 115 volts the acceptable power supply voltage range is 90 volts to 130 volts whilst at 230 volts the acceptable power supply voltage ranges from 190 volts to 260 volts.

The power supply cable should first be connected to the power inlet (but ***NOT*** the wall socket). This cable should be secured to the latticed bottom of the rear compartment using a cable tie provided. The cable may exit either at the side or back of the rear compartment by using the relevant breakout section in the chassis plastic molding.

USING THE PST SYSTEM

BEFORE POWER ON *– A Check List*

It is ***very*** important that you check the following operational points:

Ventilation

This terminal must ***NOT*** be operated in an environment with restricted ventilation. The installation should be such that there is at least 25mm air clearance around any top or side ventilation holes. The installation must also be such that there is a free flow of air around the unit at ***ALL*** times.

Operating Environment

The equipment must not be operated or stored in extremes of both temperature and humidity/moisture.

(Operating range 5°C to 40°C and up to 80% humidity – non condensing)

Power Supply

The operating voltage of the power supply should be checked to confirm that it is set within the range of the local power supply. The power cable, the power outlet and any power fusing arrangements must conform to local safety regulations.

Printer DC Power Supply

Please check that power supply polarity to the load is correct unless the printer used is the Posiflex POS printer. Permanent damage may result if the incorrect polarity is used.

VGA Display Port

The VGA port built into the PST terminal departs from the industry norm in that it has provision to feed 12 volt dc power to the monitor inside the VGA signal cable. This may cause permanent damage to any other monitor not designed to accommodate this facility. Please only use the PST monitors with the PST equipment. If you have any doubt please consult your dealer.

(***Note*****:** 12 volt DC power is available on pin 9 of the VGA connector and is supported by the UPS function.)

(***Note*****:** The 10" color monitor uses the AC outlet of power supply unit and is therefore not supported by the UPS function)

The video memory of this port shares the system memory. The size shared for video memory can be set in the system CMOS setting to match the user's application. It is known that to enable an extended dual display mode requires a video memory of 8 MB.

Customer Display

The customer display connector (marked as VFD) must always be occupied either by the VFD terminator plug (as supplied) or by one of the family of Posiflex customer displays. Without this provision the COM1 port and the cash drawer control may fail to work correctly.

The customer display port of PST system utilizes a hardware handshaking signal internally selectable between CTS and DSR in RS232 through jumper setting inside the system. Such design flexibility in the PST system makes the Posiflex customer display the most convenient companion for application software.

Serial Port – COM1

COM1 serial port must always be occupied by a suitable serial device or COM1 terminator (as supplied). If this port is left vacant or connected with something like a mouse the customer display port and the cash drawer control may fail to work correctly.

MONITOR (for PST7000/PST7300)

Mechanical Operation

The PST terminal has been designed with a novel support for the monitor. Beside the usual tilt and swivel mechanism, this terminal has incorporated "slide" capability so that the monitor position may be fully adjusted without having to use a swing support arm. At all times the monitor is firmly supported on the display platform, this gives a stable wobble free image and an absence of mechanical damage, often associated with the more common swing arm mounting.

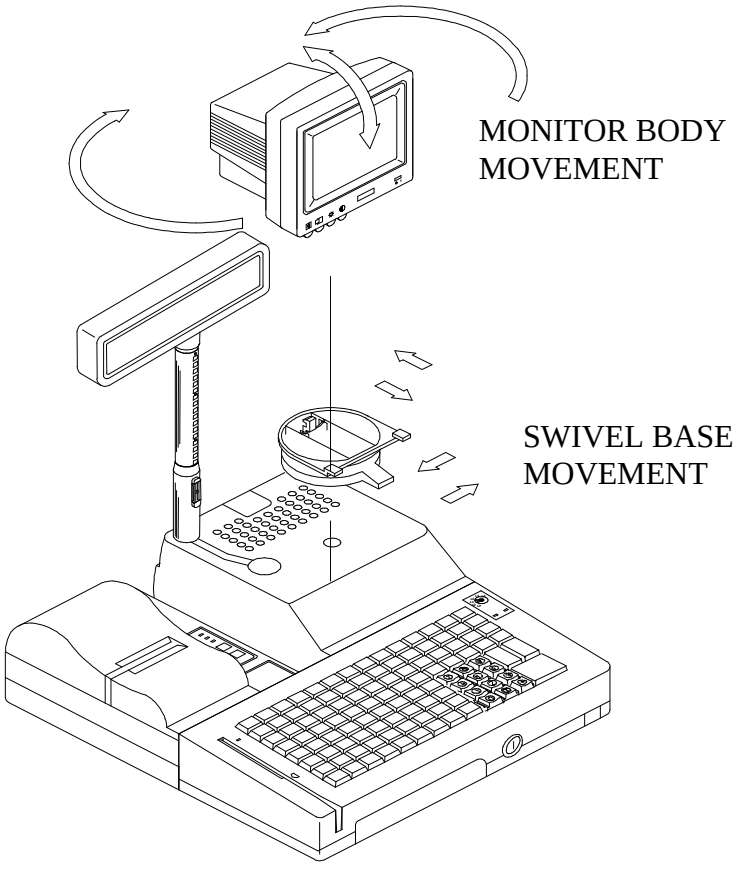


Fig. 4 - 1 Mechanical operation of the monitor

Turn On The Monitor

The ON/OFF switch of the monitor is located at the lower right front corner beneath the CRT bezel. It is a rock switch. Pressing the side marked "I" in will turn on the monitor. Pressing the side marked "O" in will turn off the monitor (ref. Fig. 4-2). The indication of power on status besides the screen itself is a green LED above the switch.

Display Controls

There are in total 4 thumb wheel knobs at the lower left part beneath the CRT bezel for electronically control over the CRT monitor display.

CONTRAST CONTROL

The first one to the right of this group is the knob for contrast control. Turning this knob to the right will decrease the contrast whilst turning it left will increase the contrast (ref. Fig. 4-2).

BRIGHTNESS CONTROL

The second knob to the right in this group is the knob for brightness control. Turning this knob to right will decrease the brightness whilst turning it left will increase the brightness (ref. Fig. 4-2).

HORIZONTAL PHASE CONTROL

The third knob to the right in this group is the knob for horizontal phase control. Turning this knob to right will shift the picture on CRT screen to right whilst turning it left will shift the picture to left (ref. Fig. 4-2).

VERTICAL SIZE CONTROL

The leftmost knob in this group is the knob for vertical size control. Turning this knob to right will decrease the height of the picture whilst turning it left will increase the height (ref. Fig. 4-2).

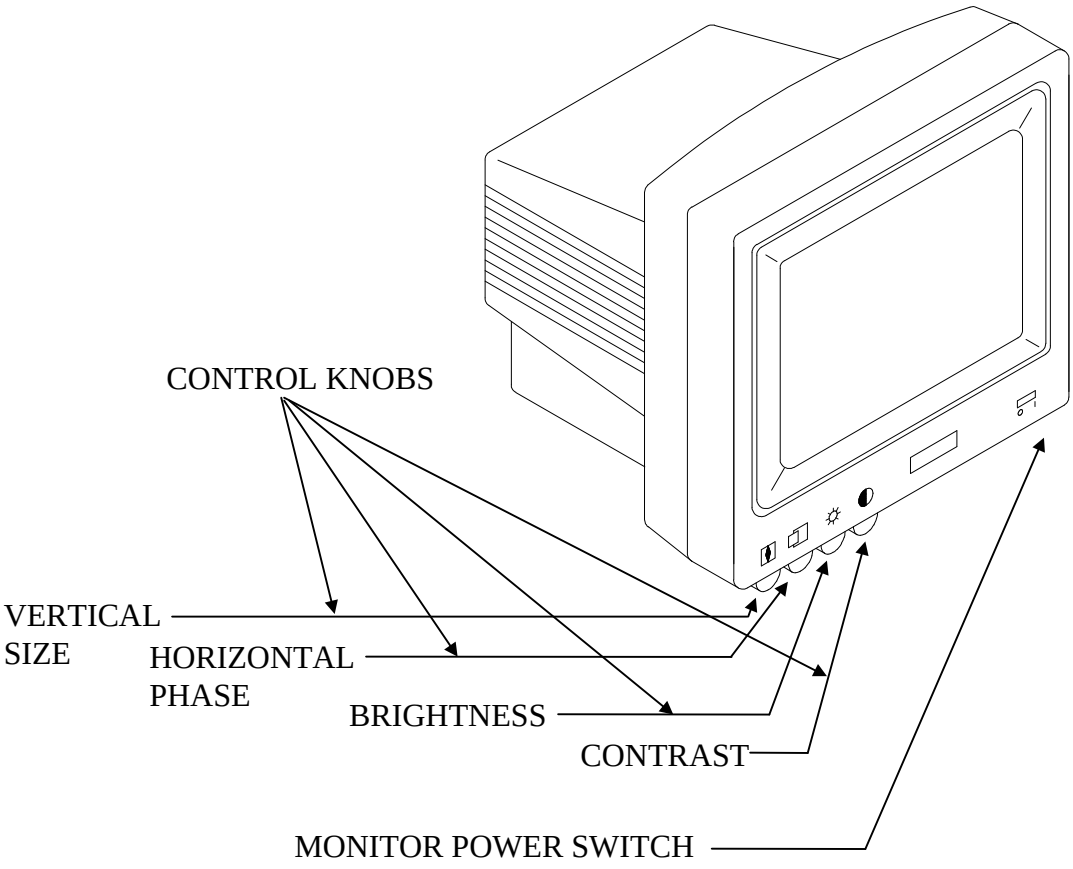


Fig. 4 - 2 Controls of the monitor

Display Utility Driver

The end user of the PST terminals is not supposed to install the utility drivers personally. If an optional preloaded OS is ordered, the required driver will be already installed in the preloaded OS. However, the driver will always be available over our web site: http://www/posiflex.com.tw

LCD (for PST7050/PST7350)

Mechanical Operation

The 12.1" LCD color display is a 800 x 600 LCD display which may be positioned to give the operator the clearest view. The display may be lifted from the horizontal to the upright position and rotated through a total of 75° (left 45° max., right 30° max.) and slid sidways for a total distance of 72 mm, care should be exercised not to attempt to exceed these limits (ref. Fig. 4-3).

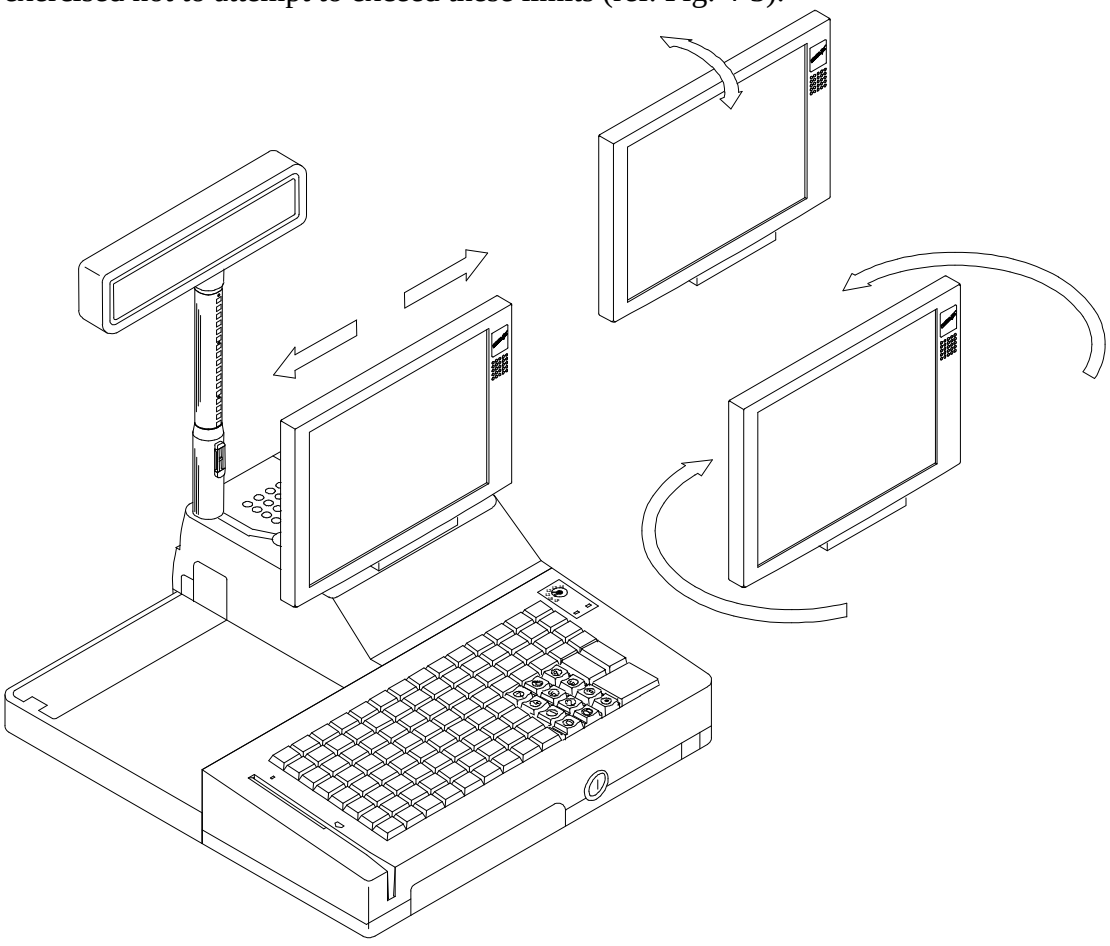


Fig. 4 - 3 Mechanical operation of LCD display

Display Utility Driver

Please refer to the "Display Utility Driver" section for monitor on page 4-5.

CUSTOMER DISPLAY

The PST7000 series is available with following possible customer display options:

- PD-2101/2201 A two line by twenty character vacuum fluorescent display (VFD) with commas, periods and second row underlines.
- PD-7001/7101 A thirty two by one hundred and sixty dot matrix LCD array organized to display a wide range of characters in many organizations with up to four lines by twenty six characters.

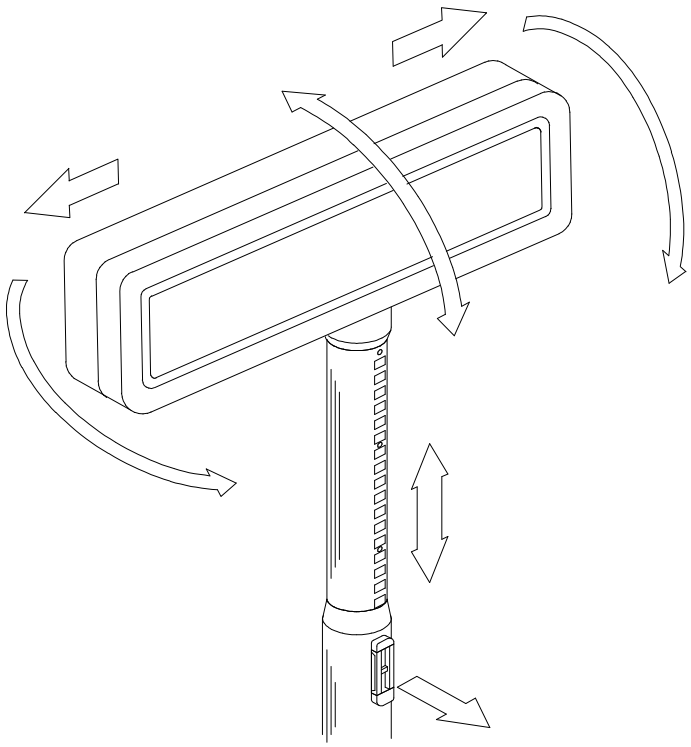
These customer displays all possess a delicate and modern industrial design not only in its appearance and display but also with user friendly mechanical features.

Versatile Mechanical Maneuverability

All the customer displays of the PST series provide a delicate design to support versatile mechanical maneuverability. The height can be easily and safely adjusted. The display frame can be rotated horizontally and slid sideways. The display frame can also be tilted up/down to give different view angles.

To adjust the height, please just pull out the release button, adjust the display to the height required, and then release the button switch. Twist or move the inner-pole a little bit so that the latching track on the inner-pole matches up with the release button

The display frame can be rotated horizontally for almost 360 degrees to face any direction required for a point of sale. However, an internal stopper is provided to limit the rotation within 360 degrees in order to avoid damaging the internal cable by multi-turn twisting.



To accommodate the height of most customers, PD-2101/2201 and PD-7001 provide 2 different view angles ---14.5° and 30°.

Posiflex customer displays PD-2101/2201 and PD-7001 provide in particular a horizontal sliding mechanism for the display frame. The display frame of PD-2101 /2201 and PD-7001 can be slid horizontally from leftmost side to rightmost side, and vice versa. Total sliding distance is 100mm.

PROGRAMMABLE KEYBOARD

The programmable keyboard in PST7000 series is a sophisticated yet easy and convenient to use computer sub-system in its own right and is designed to make a POS software application as flexible and ergonomic as possible. The standard for PST7000/7050 on this aspect is a 8 x 14 matrixed keyboard coded as KB112. The keyboard for PST7300/7350 is coded as KB136 which provides at the lower part a keyboard layout resembling the standard PC keyboard of each country. The following illustrates the standard KB112. two keyboards share most features in common.

Basic Functions

In essence a programmable keyboard allows any sequence of letters, numbers and other control functions to be assigned to a particular key. When that key is pressed the keyboard issues key codes exactly as if the sequence had been typed at a standard QWERTY computer keyboard. Any key position may be programmed with any sequence, and the entire keyboard set of key sequences may be uploaded to and downloaded from the host computer file system.

Furthermore, this programmable keyboard supports a lot of advanced functions such as keyboard security lock-off, multi-page, multi-level, answer-back, speed control of output, time control on output hold, software switch off and so on. These advanced functions are illustrated in the "special features" section. There is no size restriction other then up to 255 characters per key and up to 8KB total memory size for all the key definitions.

Structure

To the left of the keyboard frame is the MSR section, beneath the front edge of the keyboard frame is a front door in which, there is a connector for external keyboard connection. These two ports share the same port as the programmable keyboard. When the programmable keyboard locks off the keyboard port, any input from these two devices is also blocked off to insure the system security.

At the top right corner of the keyboard frame there is a 6 position key-lock. This electronic key supports the security lock off, answer back and the multi-page function that expands the programming ability of KB112 to 5 x 112 (560 in total) possible key definitions, and KB136 to 5 x 51 + 2 (257 in total).

Within the major portion of the keyboard frame is a 8 by 14 matrix allowing in total 112 positions for the programmable keys in KB112. In KB136 this area is further divided into 2 parts. The upper part is 3 by 17 matrix parogrammable keys and the lower part works like conventional keyboard with 2 embedded page independent programmable keys. The key layout of programmable keys may present versatile pattern through use of single key, double key, quad key and blank key. For example, use of blank keys may separate the whole area into several clusters for the convenience of application. Use of double key or quad key giving a larger surface for

certain key may ease the operation in pressing key. The programmable keyboard is delivered with the key tops of single, double and quad keys mounted whilst their transparent key caps are in the accessory box. The user needs to place the legend labels and the transparent key caps over each key tops to protect the labels according to the instructions given in the previous part of this manual. However, from time to time the user may still need to use the key clip to remove key caps for changing the legend labels once the key definitions may be updated (ref. Fig. 4-5).

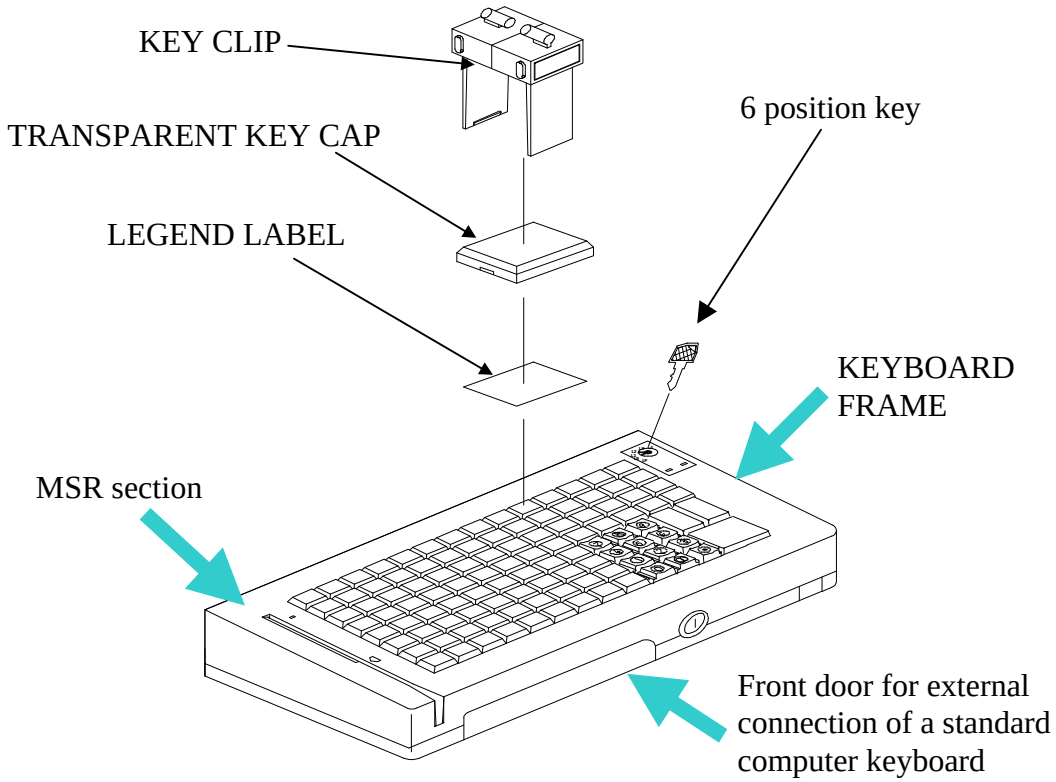


Fig. 4 - 5 Key structure

6 Position Key-Lock

This keyboard has a six position key switch which itself may be programmed so that as the position is changed with a key so the key switch reports its own position (adjustable inter position time delays are programmed in). Further more, an enquiry code from the host will cause the key switch to report its current position.

This 6 position key switch effectively provides a multi-layer capability to the keyboard in that each position of the key can define separate key sequence for each key. This gives rise to the concept of pages, so that the KB112 can be said to have 5 pages of 112 key definitions per page, this means that there are 560 possible key definitions, and KB136 has 5 pages of 51 key definitions per page plus the 2 page independent programmable keys.

There are 4 keys supplied with each keyboard and the lock is so designed that certain keys may only be turned to certain positions. This architecture is similar to that found in many high end ECR systems, so it is not surprising that the naming conventions have been borrowed as well.

The keys are named: PRG, REG, Z, GT.

The switch positions are named: LP, LCK, L1, L2, L3, L4. Among these, the position LCK marked as "🔒"

The available positions for each key type are listed in the table below of this page and are graphically illustrated in Fig. 4-6.

✓= access ✖= no access

	PRG	REG	Z	GT
LP	✓	✖	✖	✖
LCK	✓	✓	✓	✓
L1	✓	✓	✓	✓
L2	✓	✓	✓	✓
L3	✓	✖	✓	✓
L4	✖	✖	✖	✓

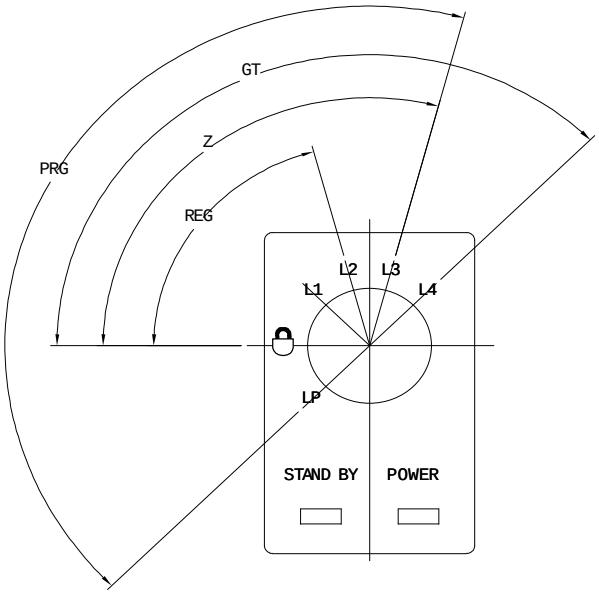


Fig. 4 - 6 Range for each key type

The position LCK is designed to provide a "Security Lock-Off" function. Keys may only be removed from positions **LCK** and **L1.**. (ref. Fig. 4-7)

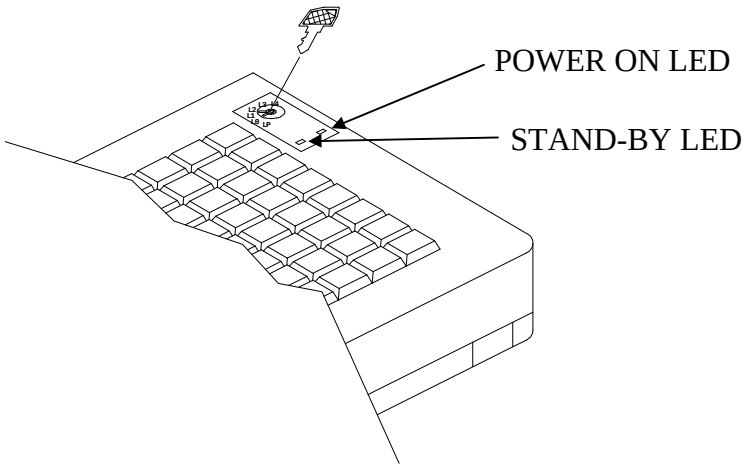


Fig. 4 - 7 Extraction of key from electronic lock

Application Example

The effect of this programmability is to give a tremendous flexibility to any keyboard layout requirement with any application package.

EXAMPLE 1

As an example the following is a possible key and position usage for a multi-level organized store:

POSITION	POSSIBLE APPLICATION
LP	To be used for key programming or system maintenance functions
LCK	All devices sharing the keyboard port are disabled.
L1	Keyboard programmed for check out function, so that each operation is a single key operation.
L2	Keyboard to be programmed for support functions, printer paper change, product code checking, shift change consolidation etc.
L3	Keyboard to be programmed for special supervisory tasks, such as inventory control, return sales etc.
L4	Keyboard to be programmed for senior management purposes, such as passwords, material costs etc.

While the 4 types of keys are kept by different positions of employee as in the following table:

Key Type	Job Title of Holder	Access to					
		LCK	L1	L2	L3	L4	LP
REG	**Cashier**	✓	✓	✓	×	×	×
Z	**Supervisor**	✓	✓	✓	✓	×	×
GT	**Senior Manager**	✓	✓	✓	✓	✓	×
PRG	**Programmer**	✓	✓	✓	✓	×	✓

EXAMPLE 2

For a multi-function store, such as a restaurant serving for all of breakfast, lunch, dinner and late snack, each meal requires very different menu; or a department store that is seeking for a standardized facility throughout its various departments each requires many items of merchandise, the multi-page capability of this keyboard can play the crusader. Simply program each page of the keyboard for each meal or each department. This PST programmable keyboard then serves for different application as the 6 position key is turned to different position, yet the facility remains unified.

FURTHER IDEAS

The answer back function of this keyboard can be utilized to show some welcome sign on the customer display or force the system into an instant sleep mode when the cashier has to leave the post for a short period and turn the switch to LCK position.

Combining the answer back function of the keyboard with the software shutdown capability of the terminal, the answer back code can be programmed to some software command that will instruct the application program to start a termination process and then send the shutdown command codes to the system. In this way, the key position LP can be used as the software safeguarded power off switch.

All the above are only some examples of the powerful combination of key programming and key access management that is possible with this keyboard. Further functionality and sophistication can be applied with multiple level keys and other capability of this keyboard. All of this may be accomplished without any additional lines of application program code and without introducing any TSR or .dll executables into the system.

Special Features

SECURITY LOCK OFF

As mentioned elsewhere, when the 6 position electronic key-lock is switched to position "LCK", the whole keyboard port is disabled for security purpose. This works just like a hardware disconnection of the keyboard including all other devices sharing this port such as the MSR option or any other either internally or externally connected DCI device. This ability provides security when the cashier has to leave the post for a short period but the station must not be turned down.

MULTI-PAGE PROGRAMMING

As explained before, the key definition string of each key can be altered by the position of the 6 position electronic key-lock. This provides a fast turn over of the key definitions just by turning the 6 position key.

MULTI-LEVEL PROGRAMMING

Most people could have some idea about the "combination key" from the standard computer keyboard using "SHIFT", "CTRL" or "ALT" keys to give other keys different interpretation or presentation. The PST keyboard doubtlessly possesses such ability. The PST keyboard even supports the "multi-level programming" which is a more advanced kind of combination key. In using the multi-level programmed keys, there are certain key(s) defined as the level selector (called as the marker). When used in combination, the content of the level corresponding to the level selector (marker) will be issued. In this structure, the PST keyboard provides much more than 112 varieties of the character strings to be issued within one page.

ANSWER BACK

The 6 position key switch of the PST programmable keyboard may be programmed so that as the position is changed with a key so the key switch reports its own position (adjustable inter position time delays are programmed in). Further more,

an enquiry code from the host will cause the key switch to report its current position to the application program.

SPEED CONTROL OF OUTPUT

The PST programmable keyboard is capable of adjusting its own speed in issuing the key definitions when the key is pressed. This feature is important for certain application or some system environment that too fast output from the keyboard may cause some difficulties. This feature is referred to as "inter-character delay" in the programming language and is adjustable in unit of millisecond.

TIME CONTROL ON OUTPUT HOLD

From time to time, there can be need for the keyboard to hold on its output for a certain period of time before next data to be issued to the system. The PST keyboard is capable of programming a hold on time in unit of second. This feature is called as the programmed time delay in the programming language.

SOFTWARE SWITCH OFF

As the PST7000 series is designed to support the software shutdown command, the answer back function of position LP can be programmed to some software command that will instruct the application program to start a termination process and then send the shutdown command codes to the system. In this way, the key position LP can be used as the software safeguarded power off switch. This feature is designed for the sake of data preservation.

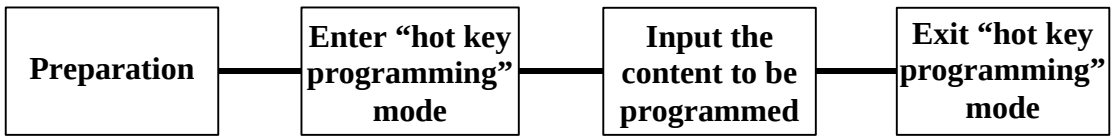
CONVENIENCE IN PROGRAMMING

The PST programmable keyboard is supported with various methods for programming its key definitions. However, the details of programming can only be obtainable in the optional Technical Manual. The followings are those methods that make programming the PST keyboard an easy job:

- **RWM.EXE –** This is a straight through programming utility used under DOS environment.
- **KBM.EXE –** This is a detail programming utility applicable under DOS, WINDOWS 3.1, WINDOWS95 and so on.
- **HOT KEY PROGRAMMING –** This is the most convenient (maybe less efficiently) programming method applicable under any environment. This is also the method most possibly used by the end user for instant content update. This will be further discussed in next section.

INSTANT CONTENT UPDATE

If you want to update the key definition of any key in the PST keyboard, this instant content update feature serves the purpose best. However, this method programs only the normal displayable characters for the key definitions. The instant content update utilizes the Hot Key programming ability of the programmable keyboard that can be arranged in four steps:



The preparation requires a standard PC or PS/2 keyboard connected to the external keyboard connector of the PST7000 series in the front door area locked by the mechanical key. To enter the Hot Key programming mode, the **left** "Alt" key and the "PRT SC" ("Print Screen") key on the PC or PS-2 keyboard must be pressed at the same time and after two beeps from the system, the key on the programmable keyboard to be updated must be pressed. The user should then use either the PC or PS/2 keyboard or the connected CCD scanner to input the content to be programmed for that key. To exit the Hot Key programming mode, the user has to press both the **left** "Alt" key and the "PRT SC" (Print Screen) again. The system gives one beep here to notify a successful input, three beeps for input failure.

Preloaded Key Definitions

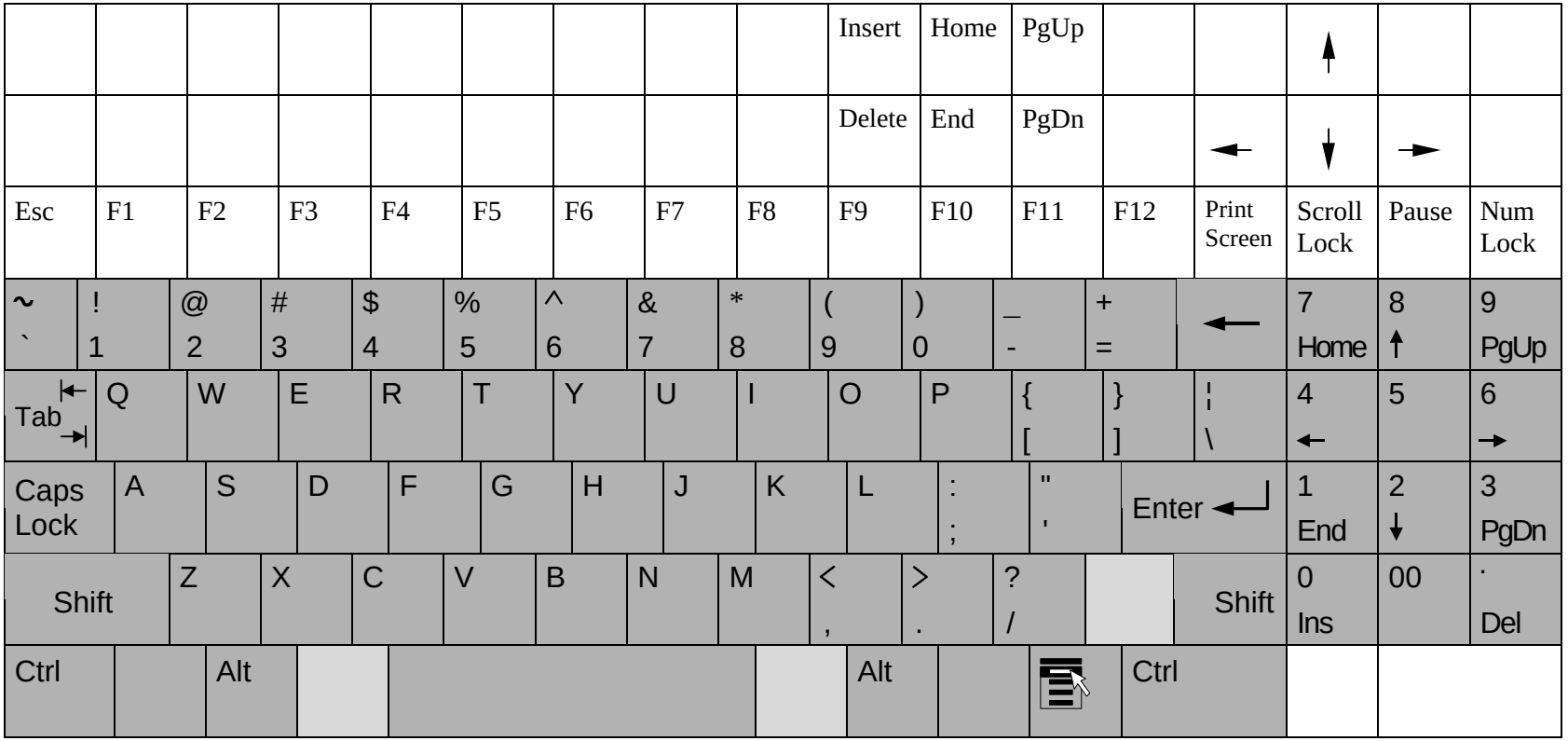
This keyboard is preloaded with a particular pattern on the page LP before it is delivered. Please refer to the print out on next page for the key definition of each location of this preloaded pattern for KB112 and the page next for KB136. The purpose of this preloaded page is to serve the software designer so that you won't have to connect an external PC keyboard when you start to program the PST keyboard. This preloaded pattern may be discarded in accordance of the application system. However, it is recommended to preserve this pattern before discarding it.

To preserve this preloaded pattern into a computer file for later use, you should refer to the "readme" file on the attached diskette in the accessory box. Then you should issue the following command from the subdirectory where you keep your keyboard driver to create the file, for example: "KB112.TPL", to store the preloaded pattern:

rwm kb112.tpl -r ↵

Esc	F1	F2	F3	F4	F5	F6	+	–	*	/	Print Screen	Scroll Lock	Pause
Tab	F7	F8	F9	F10	F11	F12			↑		Ins	Home	PgUp
{ [	}]	| \	: ;	” ’	< ,	> .	? /	←	↓	→	Del	End	PgDn
~ `	! 1	@ 2	# 3	$ 4	% 5	^ 6	& 7	* 8	(9	) 0	_ -	+ =	←
A	B	C	D	E	F	G	H	I	7	8	9		
J	K	L	M	N	O	P	Q	R	4	5	6		
Cap	S	T	U	V	W	X	Y	Z	1	2	3		
Shift	Ctrl	Alt	Space	Space	Space	Space	Alt	Ctrl	0	00	.		Enter

PRINT - OUT OF PRELOADED KEY DEFINITIONS FOR PAGE LP IN KB112



PRINT - OUT OF PRELOADED KEY DEFINITIONS FOR PAGE LP IN KB136

MSR – MAGNETIC STRIPE READER

The Magnetic Stripe Reader (MSR) slot is located at the left side of the Programmable Keyboard if the MSR option is ordered when the PST system is equipped with the standard 112 key programmable keyboard. There are two choices of the reader types -- dual tracks and triple tracks separately.

For card reading, be sure to insert the card to the bottom with magnetic stripe facing right. The movement of the card can be either inserting the card from the top surface then sliding the card down out of the slot, or sliding the card upward from the lower side of the slot till it reaches the top end (ref. Fig. 4-8) as long as the card is a standard one. A non-standard card recorded without complete degaussing prior to recovery may accept only one direction in card reading.

The MSR indicator located near the MSR slot will light up in green when the MSR is ready to read, blink during reading, and then give a green light if the reading is successful. The MSR indicator will turn to be red if the reading fails due to improper sliding or poor magnetic intensity of the magnetic stripe, the MSR indicator will then turn back to green when the MSR is again ready to read.

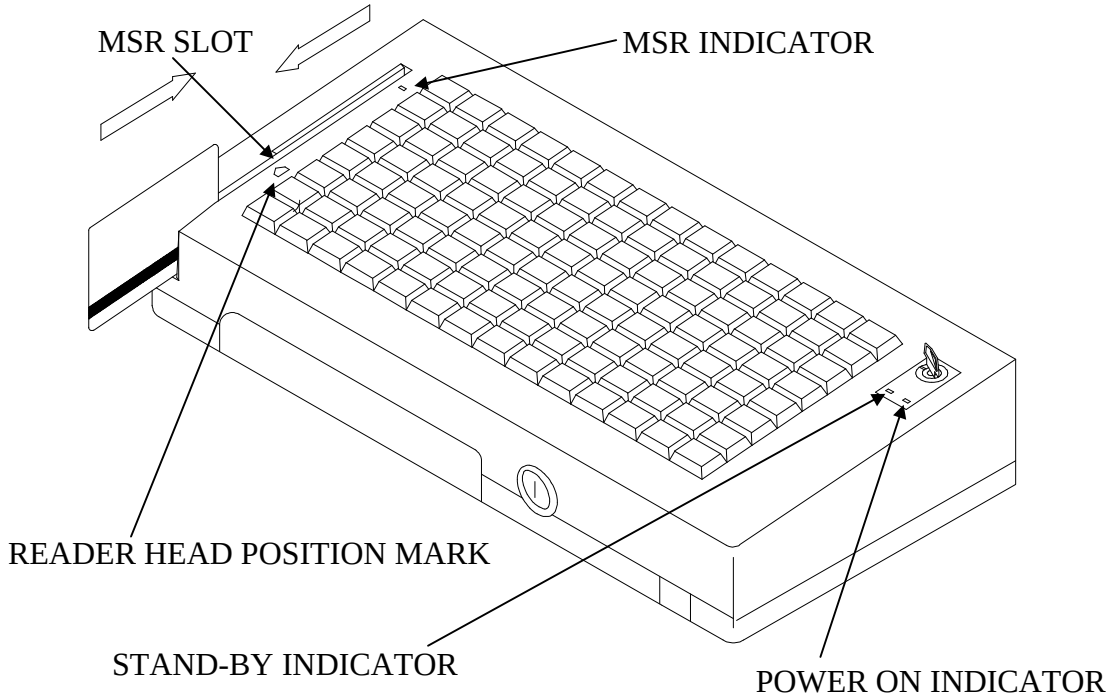


Fig. 4 - 8 Reading magnetic stripe cards

LED INDICATORS

Besides the LED on MSR unit there are another two LED's on the main unit below the 6-position electronic key on the programmable keyboard (ref. Fig. 4-8). The right hand green LED, called as the power LED, and the left hand orange LED, called as the Standby LED, together exhibit several different system status depending on whether or not an UPS battery is fitted.

(a) Without an UPS battery the power LED lights to show that the system is turned ON under presence of AC power. The standby LED indicates that AC power is available when the system is powered off.

(b) With a UPS battery fitted:

1. The standby LED gives a steady illumination to indicate the presence of AC power when the system is powered off. The system cannot be turned on if the AC power fails, even when the battery is fully charged. The power LED goes ON and the standby LED goes OFF when the system is powered up.
2. During periods of AC power failure with the system turned on, the power LED flashes to indicate that the system is running on battery power.
3. The power LED is turned OFF and the standby LED flashes rather fast as the UPS battery approaches a discharged condition to remind the operator that power will soon finish. In few seconds, the whole system will soon be automatically turned off and both LED will be OFF.
4. In case the AC power resumes during the usage of the battery, the flashing LED will keep on flashing for few seconds till the AC supply is considered stable.

FRONT DOOR

At the front of the programmable keyboard there is a door with a mechanical lock to the right of it. Turning the key clockwise will cause the front door to open a small amount where it is held against a catch, the door may be fully opened by hand. When the key is returned to its original position and the door is pushed back, the door will be locked into position once more. This lock mechanism also physically locks the programmable keyboard subassembly housing to the chassis of the main unit, which prevents unauthorized access to the internal electronics. There are the external PC keyboard connector, main power ON/OFF push switch and the 1.44MB 3.5" Floppy Disk Drive (FDD) behind the door.

EXTERNAL PC KEYBOARD

From time to time it will be necessary or more convenient to use a standard PC keyboard. This may be to reprogram the PST keyboard key definitions, or to alter some aspects of either the DOS operating system or the application program. The PC keyboard may be plugged into the 5 pin DIN socket behind the front door.

This socket may also be used to trial a new device that is required to be daisy chained to the keyboard port (e.g. a table scanner). Please keep in mind the previously mentioned limit of 5 devices.

3.5" FDD

This port is a standard PC device, it accepts any 3.5" floppy diskette formatted to 1.44 MB, 720 KB or 1.2 MB IBM (Japan) PC standard which emulates a 5¼ inch HD FD but on a 3½ inch physical disk.

POWER ON/OFF CONTROL

The PST7000 terminal implements electronic power control, such that the main power to the system may be controlled by five methods:

1. Front mounted external power ON switch
2. Internal power ON/OFF push switch
3. Software OFF switch
4. Preset power ON control
5. Emergency power OFF

Switching from OFF to ON requires a normal supply of the AC power.

External Power On Switch

This button is located on the lower right hand front edge of the keyboard and can be used to turn on the system only. That means, when this switch is accidentally pressed during system turned on, the system just remains on and not affected.

This switch can also be programmed to an ON/OFF switch (with default as ON only) through software command.

Power On/Off Push Switch

This is the switch behind the front door. This switch is a simple momentary action switch, which activates a toggle action in the electronics of the power supply circuits. Its function is to toggle the power supply on and off. If the terminal is powered off, then pressing the button simply powers on the unit. If the unit is powered on then pressing the button will power off the terminal.

Note: Powering off the unit in this way is instantaneous and must be undertaken with care to prevent any loss of data.

Software Off Switch

The system may also be shut down under software control, details of which are beyond the scope of this user manual - for more details contact your dealers. However, it is the most recommended way to turn off the PST7000 series. Because the application program can then be able to control and secure against any possibility of data loss.

Preset Power On Control

The system may also be turned on according to some predetermined parameter such as Modem Ring Up and Alarm Clock Wake Up or LAN Wake Up.

To utilize Modem Ring Up or Alarm Clock Wake Up function, the user should enter the CMOS setup by pressing "DEL" key at system boot up, choose for "INTEGRATED PERIPHERALS" and make the "Ring Power Up Control" enabled for Modem Ring Up or select the "Power Up by Alarm" for Alarm Clock Wake Up. Save the configuration and exit the CMOS setup program. The Preset Power On Control will then be ready. To excercise the LAN Wake Up function, the condition for waking the system up must be defined through use of a specific software before the system shut down.

When the PST7000 system is turned off after a successful boot up, the defined preset power on functions will keep monitoring for the preset conditions. When a Modem call is received, the system will be turned on and start to work according to the security conditions as the application program defines if the Ring Power Up Control is enabled. If the Power Up by Alarm is enabled, the PST7000 system will be turned on at the defined time (Hour:Minute:Second) of the preset day of week, day of month , month of year or even every day if these items are not defined.

Please note that if the PST7000 system is improperly turned off before a complete boot up procedure, the above preset power on control functions will be disabled until next turning off after a complete boot up.

Emergency Power Off

In case of serious system halt due to any reason, the system could fail to be powered off through normal means. Please apply Emergency Power Off method only on such occasion. Press and hold the Power ON/OFF Switch or the External Power ON Switch after it is programmed as ON/OFF switch. The system will be powered off within 10 seconds in this way. Release the switch after the system powered off. If there appears to give a special coded beep tone in the pattern "short, long, short, long, short" prior to the system power off in this process, please remove the AC power and wait for few minutes to allow the hardware registers to reset (If there is no such beep, AC removal is not required). Then you may restart the system and take remedial action against the precious failure.

REAR ROOM

The terminal has a rear room that covers the signal and power connector area and is designed to provide a tidy and secure termination for all cables into and out of the terminal. Cables may be secured by attaching them with cable ties to the lattice base of the compartment.

Access to the rear room is gained by releasing the rear door latches. These are located under the lower edge of the door at either side of the door. They may be located by "feeling the ridges" on the latch, sliding both latches to the centre of the door will release the door. These latches are intentionally stiff.

PRINTER

One of the major design features of the PST terminals is the ability to accommodate a very large range of printers. The terminal provides a printer platform where the printer can be mounted (use the Velcro strips in the accessories kit for fixation aid), and also provides a regulated 24 volt dc power line to power the printer.

The terminal can accommodate both parallel and serial interfaces.

Please consult the printer user manual before assembling and connecting any printers to the terminal.

USB

There are two standard USB female connectors in the rear room. Both support the Universal Serial Bus Specification version 1.1. The application of USB is ever growing with the new Operation Systems introduced at the conjunction of 20th and 21st centuries.

BUILT-IN UPS WITH BATTERY

The built-in UPS battery option, if purchased, works without need for much care. In case of power failure from the AC inlet, the PST system beeps for alarm and automatically switches to battery power smoothly. The equipped battery, when fully charged, will support the system to operate for at least 5 minutes subject to the load such as printing. The coverage of this UPS support includes the PST system itself, the customer display port, the cashier display port, the +24 V DC supply, the direct driven

CR port, the KB wedge connected device and the serial ports if the DC supply is enabled. However, the devices using the AC power is not supported by the UPS such as the optional 10" color monitor. Should the user want to replace the battery or reconnect to another larger battery, he/she may refer to Fig. 3-12 and press down the end with arrow of the battery cover to open the battery cover by pushing it toward the rear room.

The battery is maintenance free and is leakproof constructed. The battery compartment of the PST system also provides very good protection as long as the ambient temperature remains below 30°C and the ventilation of the PST system is not blocked. However, should any accident happen and the sulfuric acid from the battery is spilled on skin or clothing, wash immediately with water. If the acid comes in contact with eyes, rinse eyes with large amount of water and immediately see a doctor.

WARNING:

ONLY CONNECT/DISCONNECT THE BATTERY WHEN SYSTEM POWERED OFF WITH THE MAINS POWER REMOVED.

DISPOSE OF THE BATTERY CORRECTLY. DO NOT EXPOSE TO HEAT.

IF THERE ARE ANY SIGNS OF OVER CHARGING OR LEAKAGE OF ELECTROLYTE PLEASE CONTACT YOUR DEALER IMMEDIATELY

A larger external battery may be connected to give an extended operation. Please see your dealer about this capability.

DISCLAIMER

The manufacturer of the integrated POS terminal system makes no representations or warranties, either expressed or implied, by or with respect to anything in this manual, and shall not be liable for any implied warranties of fitness for a particular purpose or for any indirect, special or consequential damages. Information in this document is subject to change without notice and does not represent a commitment on behalf of the manufacturer.